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ON MEDICAL MUSEUMS,

With special reference to the Army Medical Museum at Washington.

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GENTLEMEN OF THE CONGRESS: Our articles of confederation require that the President shall give an address. In endeavoring to comply with this regulation I must ask your indulgence, for, while I think I have something to say, I cannot give you such a discourse as would befit the audience, the occasion and the subject.

The prominent characteristic of the great majority of the societies composing this Congress is that their members have, as a rule, been chosen because they have either made some valuable contribution to medical literature, or have, in some way, rendered aid to the profession; in other words, they are supposed to be men whose labor and thought have not been confined to their own interests, or to those of their own patients. It may, therefore, be assumed that you are all interested in medical science, not merely as a means of giving new modes of diagnosis or of treatment, but also for its own sake, for the sake of knowing, for the pleasure of investigation, and in the hope of helping others, and that, while the majority have devoted themselves more or less to special branches, they have not, in so doing, lost interest in what may be for the general good of the whole profession.

I am here as the representative of the medical departments of the general government, which has need of the best knowledge of all the specialties, and is beginning, in its turn, to do something for each.

The physicians in the government service are all general practitioners, and are expected to have such an education and training as will fit them to deal, alone and without consultation, with the diseases and injuries to which men, women, and children are liable. You have been, and still are, their teachers—in the lecture-room and the hospital before they entered the service—in your text-books, monographs, and contributions to journals or transactions which follow them to their widely scattered posts of duty. They are your warm friends; the more you discover, the greater your skill, the more recognition which your work receives, the better they are pleased.

Within the last twenty-five years the general government has, in its turn, done something for medicine and for you, by founding and maintaining a medical library and museum in Washington under the direction of the Medical Department of the Army.

I have had occasion several times to call attention to the library, which no doubt is that part most immediately useful to physicians, and which has attracted most attention. To-night I propose to speak of the other branch, in whose proper development it is desirable that you should take an intelligent interest, and after giving a brief sketch of the development of modern medical museums we will consider more especially our own national medical collection as it is, and as it ought to be.

The origin of collections of objects of natural history was possibly, as suggested by Beekman, the custom of keeping curious objects in temples; but we have no record of the formation of any collections specially connected with anatomy or medicine before the sixteenth century. It is true that human anatomy had been introduced in the schools by Mundinus in 1306, and that no doubt in Bologna, in Paris, and a few other places, a skeleton or two was preserved for purposes of instruction; but alcohol was unknown as a preservative before the end of the fifteenth century, anatomical details were of no interest until Vesalius had stirred up controversy with the Galenists, and injected preparations were not thought of until after Harvey's announcement, in 1628, of the discovery of the circulation of the blood.

The introduction of the use of the microscope at the beginning of the seventeenth century, and the collections of preparations for use with this instrument made by Leeuwenhoek and Ruysch, gave a powerful stimulus to formation of museums of this kind. The most famous of these collections was that of Ruysch, purchased in 1717 by Peter the Great, and sent to St. Petersburg. Ruysch was practically the first to prepare injected anatomical specimens for permanent preservation, and, if the stories told of his work are true, he made preparations which have never been surpassed. His museum was a very ornamental one, the bones and skeletons being arranged in various devices, the plants in bouquets, while scattered through the whole were beautifully engrossed sentences from the Latin poets.

The most famous medical museum in the latter half of the eighteenth century was that founded by Fontana, at Florence. This still exists, filling a series of rooms, and consists mainly of wax preparations, beautiful to look at, but inaccurate, and of little scientific value.[1]

[1] The first use of wax models to represent pathological specimens or dissected preparations of parts of the human body is attributed to a Sicilian priest, Gaetan Jules Zambo, who lived in the latter part of the seventeenth century, and who had been accustomed to make wax models of diseased or deformed hands, feet, etc., to be used as *ex voto* offerings at the shrines of certain saints. The fame of these induced a Florentine surgeon, Ricci, to visit the priest and to get him to model some pathological specimens which he furnished. A Franciscan, named Desrones, brought this art to France, and made many such models between

During the first half of the present century a number of private collections were formed by anatomists, pathologists and surgeons. Most of these have become public collections, either by gift or purchase, and the rest have been dispersed or destroyed. There is not in existence, at the present time, any large collection of specimens pertaining to human pathology which is the property of an individual, and is at all comparable to those made by John or William Hunter, Astley Cooper, Howship, Liston or others. Commenting on this fact, Sir James Paget writes me that he does not know of any large private pathological collection, and that he believes the change to be entirely for the better.

The necessities of modern progress in anatomy, physiology and pathology, have led to the creation of medical museums in all parts of the civilized world. In most of the continental capitals these are connected with universities supported by the state. In Great Britain and in this country they are, as a rule, connected with private, or semi-private institutions for medical teaching. This difference is connected with the relative position which medicine holds in the educational machinery of the state in different countries. Where medical education is furnished by institutions directly supported by the government, the museums, which are a part of the apparatus required, are, of course, also supported by the government.

Through the aid of friends, whose kindness in replying, or in obtaining replies, to somewhat troublesome inquiries, I cannot sufficiently acknowledge, I have obtained certain data with regard to some of the most important medical museums now existing in the world, and a part of these data are summarized in the table before you. Evidently the city having the most valuable aggregate of anatomical and pathological specimens at the present time, is London, which contains the collections of the Royal College of Surgeons, of St. Thomas's, Guy's, St. Bartholomew's, St. George's and other hospitals, and of University College, the College of Physicians and others. The oldest public anatomical museum in London is probably that of St. Bartholomew's, which, in 1726, had a room set apart for the purpose under the charge of John Freke, and which received the private collection of Abernethy. The most important medical museum in the world, and the one which has exercised the greatest influence in giving direction to anatomical and pathological studies, and in serving as a model for the formation of other collections, is undoubtedly that of the Royal College of Surgeons of London, the foundation of which was the collection made by John Hunter, purchased by the government in 1799. In one sense it is not a government institution, the funds from which it is now supported not coming directly from government grants; but, in another sense, it is truly such, since the College may be looked upon as an agent of the government having special charge of matters connected with medical education, as it is the principal examining body for those proposing to practise surgery in Great Britain.

the years 1703–1706, and Bianchi formed a large collection of the same kind in Italy. It was scattered after his death, and the last vestiges of it were two models representing a healthy and a diseased liver, which were to be seen in Innspruck in 1766. (Percy et Laurent, in Dict. des Sci. Méd., Paris, 1818, vol. xxxv., article "Museum.")

The great value of the Hunterian collection lies in the breadth of its scope, which includes every branch of medical science; but it is preëminent in illustrations of human morphology and its abnormities. The museums of the great hospital medical schools are relatively richer in the department of pathological anatomy, specimens of which they have greater facilities for obtaining. Among these there is, of course, a certain amount of duplication of matters of interest; but no two pathological specimens are precisely alike, and the question discussed in the Paris school one hundred and fifty years ago, viz.: "An pro distinctis ægris ægritudines diversæ?" is one that often occurs to a curator as he examines new specimens which differ but little from those already in his collection, but which do differ in some respects, and with regard to which he must decide as to whether, upon the whole, they are worth the trouble and cost of preservation.

Edinburgh and Dublin have also each large and valuable collections pertaining to anatomy and medicine.[1] In Paris the medical museums are those of the Faculty of Medicine, including the Musée Dupuytren devoted to pathological anatomy, and the Musée Orfila devoted to human and comparative anatomy, materia medica, natural history and instruments and apparatus.

Professor Leon Le Fort, to whom I am indebted for data with regard to these collections, remarks that a large proportion of the anatomical specimens of the Orfila museum come from candidates who take part in concours opened for positions connected with the anatomical teaching of the faculty—such as prosectors, demonstrators, etc., each candidate being required to furnish from ten to thirty specimens.

The medical museums of other European countries are connected as a rule with universities, and it is to be remembered that in these the different branches of medical instruction are each both more specialized and more comprehensive than is the rule with us. The professor of anatomy, of physiology, of pathology, has each his own building or institute, and, therefore, each his own museum; and unless this fact be held in view, comparisons between Continental and English, or American, medical collections may give very erroneous results.

With regard to the museums connected with American Medical Schools I will say little, referring you to the table and appended notes for such data as I have been able to collect. I am aware that in so doing I put aside a splendid opportunity to enlarge upon the general superiority of all these collections and the peculiar excellences of each, but I think that you all know as much about these as I do and there is time only for details with regard to the one American Museum in which I am specially interested. I will say only that the best museum connected with a medical school in this country is the Warren Museum in Boston, and that the history of the collections of wax models, upon which several of our museums have expended large sums of money, is very instructive as to how not to do it.

[1] I am indebted to Sir James Paget for the information given with regard to the greater number of the British museums. I had originally intended to attempt to obtain such data only from four or five of the largest; but on sending my little list of questions to Sir James he took such a kindly interest in the matter as to send a copy of these queries to a number of other museums with the request that they might be answered.

So far as mere number of specimens is concerned our own national medical collection is one of the eight largest in the world, and is increasing more rapidly than any other.

This collection, known as the Army Medical Museum, owes its inception to Dr. Wm. A. Hammond, one of whose first acts after becoming Surgeon-General, in 1862, was to issue a circular stating that "as it is proposed to establish in Washington an Army Medical Museum, medical officers are directed diligently to collect and to forward to the office of the Surgeon-General, all specimens of morbid anatomy, surgical or medical, which may be regarded as valuable; together with projectiles and foreign bodies removed, and such other matters as may prove of interest in the study of military medicine or surgery."[1] By the end of the year over a thousand specimens had been collected, and the catalogue printed in 1866 showed that it contained 7716 specimens. It is not my purpose in this address to trace the history of its development; that must be done elsewhere. It has recently been placed, with the Library, in a conveniently arranged fire-proof building, and on the first of July last contained over 15,000 specimens besides those contained in its microscopical department, divided as follows:

Comparative Anatomy	1,689
Pathological	8,354
Medals	384
Microscopical specimens	10,416
Normal Human Anatomy	2,961
Instruments and Apparatus	814
Microscopes	141
Miscellaneous	835.

Besides these there are 375 specimens pertaining to normal human anatomy and 726 to pathological anatomy, which are in what is called the provisional series.

It is not, however, by number of specimens that the importance and value of museums of this kind can be judged; and in this case such a comparison would give an exaggerated and erroneous idea of the value of this collection. My object in this address is not to boast of what we have, but to indicate what we want; to point out what a National Medical Museum, arranged to meet the wants and interests of this country, should be, should have, and should do, and to suggest some of the ways in which this is to be brought about.

At first the Army Medical Museum was limited to military medical subjects, but of late years its scope has been greatly broadened, and is now nearly the same as that of the Royal College of Surgeons. It includes human anatomy, physiology, pathology, somatological anthropology, instruments and apparatus, and illustrations of methods of teaching connected with special departments of practical medicine. It does not at present include hygiene or materia medica, except in their immediate relations to the military medical service, and this for reasons which will be stated presently. That our National Medical Museum should be broad and comprehensive in its scope there can be no doubt, its requirements in this respect being quite different from those of collections formed and used more especially for the purpose of teaching medical students. The most practically valuable of these last are those formed by individual professors to suit their own specialties and methods of teaching. They need not, as a rule, be large. I may even say that they should not be large; for the labor of properly preserving a large collection is great, and the student, with his limited time and want of knowledge of what to look for, can examine but few specimens so as to profit by them. For the same reason specimens of rare abnormities, of double monstrosities, etc., are of little use in ordinary medical teaching as given in this country, and are not specially desirable in the museums of our medical schools.

You may have noticed that, in speaking of the scope of our museum, I said it included "human anatomy." This phrase does not mean that it has no specimens illustrating the structure of other animals,—for it has many, and needs many more; but it means that in this department its main purpose is not to make comparative anatomy an end to itself by exhibiting all known variations in structure throughout the animal kingdom as a basis for their study in relation to development and environment, causation and results. In other words, it is not an anatomical museum but a medical museum. The broad field of general biology, including natural history and comparative anatomy, will ultimately be covered by the National Museum, and in our medical collection it will be quite enough to illustrate human anatomy fully, using so much of the structure of the lower animals as will be useful in explaining why certain parts of the human body are thus, and so, and not otherwise. No sharp line of distinction can be drawn between the field of work of the general, and that of the medical museum. So far as morphology is concerned, they must necessarily overlap somewhat, since both want a certain number of the same specimens although using them to illustrate different points of view.

The medical museum should possess a series of specimens showing the normal anatomy of the domestic animals, or of animals used in experimental pathology, pharmacology or physiology as a basis for comparison with abnormal or pathological specimens derived from the same animals. It is in the section of embryology, illustrating laws of heredity and development, that specimens from the lower animals are most interesting, and this is especially the case in the study of human abnormities and monstrosities. It is quite possible that to some anatomists it may seem that no limitation should be placed to the scope of the museum in this direction, for it is easy to trace some connection between any variation in structure in any animal and some structure, normal or abnormal, in man, but the limitation is placed, with reference to the work of the National Museum, so as to secure the best results.[1]

The kind of specimens most valued for illustrating anatomy in a museum is now very different from what was sought for in the first half of this century. Dried and varnished dissections showing bloodvessels, etc., are now looked on as nearly useless, and are kept only as

[1] Circular No. 2, Surgeon-General's Office, Washington, D. C., May 21, 1862.

[1] In the great majority of medical schools in this country anatomical teaching has a much more limited field than in the German universities, and our professors of anatomy, following English traditions, are usually in training for surgery. We have, however, several who are devoting their entire work to anatomy in the broad sense, and for its own sake, and it is in this direction that progress will be made.

historical relics. Elaborate dissections under alcohol, mounted in opaque dishes, with flat glass covers, and sections of frozen bodies, similarly mounted, are what the student and the practitioner most desire to see. In our museum there are some excellent specimens of this kind, prepared under the direction of Professor His, of Leipzig; of Professor Cunningham, of Dublin; and by our own anatomist, Dr. Wortman. These, however, are only samples to show how the work should be done. We require several hundred such specimens to illustrate properly regional anatomy in relation to age and sex, while the possible applications of the same methods to the illustration of visceral displacements, hernias and deformities of all kinds are boundless. As regards physiology, but little can be done by museum specimens to illustrate function as distinguished from form and structure. The so-called physiological series in the Hunterian collection, is a series of organs illustrating variations in different families of the animal kingdom or at different ages; in other words, it illustrates ontogenic and phylogenic development. The things students or teachers of physiology are most anxious to see in a museum are specimens of instruments and apparatus employed in experimental physiology, or in the measurement of the special work of different organs, or in illustrating lectures on physiology. Illustrations of results obtained in experimental pathology often belong quite as much to physiology; as, for example, specimens of results of Gudden's atrophy method.

The Army Medical Museum has a only a beginning of such an anatomical collection as I have indicated as desirable. Like all other museums, it is richer in specimens illustrating osteology than in any other branch of anatomy, simply because such specimens are the easiest to obtain and preserve. We are accustomed to think that human anatomy is nearly exhausted as a field for original research, and that, at all events, every important organ or muscle or nerve has been figured, described and named. Granting this, so far as the adult is concerned, although it is by no means true even for him, we have still to study the development of each of these organs or groups of organs, as seen at different ages, and, for some of them, in different races. As fast as these points are seen to be of practical interest, either in connection with diagnosis or the surgical treatment of disease, they are investigated; but an ideal museum should furnish the investigator the means for his researches; and it must, therefore, collect specimens without special regard to what is at present known to be their practical interest. The collection of such series of specimens of each joint, region and organ, as I have in mind, including sections and dissections at different ages from the earliest appearance in fœtal life to extreme old age in man, and in many cases in the lower animals, is a slow process. Such specimens, and especially such series of specimens, can only be prepared by a skilled anatomist, and there are few such; hence, the formation of our ideal anatomical collection, limited though its scope may be, must be a work of time.[1]

[1] As Sir William Turner remarks: "Where a question in human embryology hinges upon an examination of parts in a very early state of development, we have often to wait for many years before an appropriate specimen fails into the hands of a competent observer."

There is ample material and scope for original work for half a dozen skilled anatomists for many years to come to supply the demands of this museum for illustrations of human morphology in its various relations, and it is not desirable to scatter effort over too wide a field.

The pathological section of a medical museum is its main feature, being, as Mr. Flower remarks, the section to which, in the eyes of Hunter and his successors, all others form merely the introduction. It is true that to some physicians specimens in this department seem to have little value; but they are balanced by those physicians whose chief interest in a case of disease is to get a post-mortem. No doubt much of the ancient pathology, and some of that which is quite recent, is comparable to the looking in the dark for a black spot which is not there, but those who despise pathology, and devote their entire attention to symptoms and treatment, err as much on one side as those who talk and act as if a knowledge of pathological anatomy could take the place of clinical experience do on the other. I do not know, however, that the doctrine usually preached, viz., that each man should attain the just mean in his views, is a true one. Certainly it is not the principle on which the universe seems to be constructed; the balance is maintained, not by having everything exactly symmetrical, but by excess in one direction balancing excess in another.

To secure pathological specimens in their most instructive forms for museum purposes requires, in many cases, not only considerable variation from the usual routine methods of post-mortem examinations, but very considerable delay in ascertaining the results. If, for example, we wish the best specimens of the results of cerebral disease, the brain must not be removed and sliced up in the usual manner; it should be hardened *in situ* to a certain extent, and its sections should be carefully considered with reference to their preservation in their relations to each other before they are actually made. There is need of a treatise by a skilled pathological anatomist giving such methods in detail from the modern point of view.

One of the most important sections of our museum is that devoted to microscopy, including normal and pathological histology and photomicrographic work. In the cabinets there are nearly 11,000 mounted specimens, illustrating almost every field of microscopical research. Many of these were made twenty years ago and more, and were mounted by processes which have not given good results, so that Dr. Gray, who is in charge of this section, estimates that about 3000 will be set aside as worthless; but the rest form a very valuable series to which additions are being constantly made, and materials for which we are specially anxious to obtain. In connection with this section a series of cultures of chromogenic and pathogenic bacteria is kept up for museum exhibits, and also to illustrate methods of work.

While the great majority of the specimens in a medical museum have some relation to diagnosis, prognosis, or therapeutics, the number of those which are of direct interest to the so-called practical physician is not very great. It includes models and casts illustrating dermatology, morbid growths, the results of amputations, excisions, plastic operations, etc., and instruments, apparatus, dressings, etc., of all kinds. Here also may be

classed hospital fittings and furniture, means of transportation for sick and wounded, model cases of instruments, emergency chests, etc. Our medical museum has a fair beginning of a collection of this kind, including over a thousand specimens; but many more are needed to make it reasonably complete. If each medical man who devises a stethoscope, a pessary, a speculum, an ophthalmoscope, or an electro-therapeutic appliance with which he is well pleased, would send a specimen to the collection, its increase would certainly be rapid, and it could always show the latest improvement.

An ideal medical museum should be very complete in the department of preventive medicine, or hygiene. It is a wide field, covering, as it does, air, water, food, clothing, habitations, geology, meteorology, occupations, etc., in their relations to the production or prevention of disease, and thus far has had little place in medical museums, being taken up as a specialty in the half dozen museums of hygiene which now exist.

Our own National Museum of Hygiene is, as you know, under the direction of the Medical Department of the Navy. It is a very interesting collection of sanitary appliances of various kinds; but it is not well housed, is much overcrowded, and its location is so inconvenient that it receives but few visitors, and, therefore, has by no means the educational influence that it ought to have. It should be provided with ample quarters in the immediate vicinity of the National and of the Army Medical Museums, to both of which it would form a very desirable supplement. In our medical museum, at present, military hygiene only is illustrated, and this only in a few branches, such as hospitals, means of transportation of wounded, etc. As regards materia medica, an exceedingly well arranged collection, including about 5,000 specimens, has been formed in the National Museum, under the direction of the Surgeon-General of the United States Navy, by Dr. J. M. Flint, of that service. The relations of materia medica to natural history, commerce, and the arts, which are subjects belonging especially to the National Museum, are as close as they are to medicine, and I am very glad that our national collection in this branch is where it is, and under its present management. In the Medical Museum we have a collection showing what is supplied in the way of drugs, instruments, etc., to the medical department of our army, and, as opportunity offers, we shall extend this to include the medical supplies of other armies or services.

The extent to, and manner in, which a medical museum should deal with anthropological and ethnological problems are not questions to be discussed in the abstract with advantage, since the answers must differ greatly according to circumstances. In our National Museums the matter has been so arranged that all material relating to anthropometry, or to real or supposed structural differences in man according to race, are cared for in the Medical Museum, while specimens illustrating manners and customs, implements, weapons, clothing, pottery, etc., are taken charge of in the anthropological division of the National collection.

The Army Medical Museum contains what may seem a large amount of material relating to human osteology, and especially craniology, in its relations to North American ethnology, or the history of the development of different varieties of man on this continent; but it is not actually half large enough to permit of drawing definite scientific conclusions from it. The majority of the crania which it contains have been measured to a certain extent, and the results have been published; but many other measurements are desirable to permit of comparison with series taken elsewhere, and even measurements already made must be repeated by later and better methods. We have been trying some experiments with composite photography and superimposed contour tracings as a means of obtaining typical outlines and dimensions for race groups of crania, and these give promise of good results. If the collections of crania of North American Indians in Boston, New York, Philadelphia and Washington could be brought together, a very much better average presentation of the majority of tribes or groups would be obtained than can be furnished by either of these collections taken separately. By composite photography and tracings, combined with uniform methods of measurement, we can practically bring these collections together, and obtain results nearly as satisfactory as if we had them all in one room. We have also fitted up one large room with instruments and apparatus for anthropometry in its widest sense, including psychophysical investigation, and it is intended to make this a complete laboratory for illustration of methods of work.

In London arrangements have been made to have such an anthropometric laboratory in an outbuilding at the South Kensington Museum. The two things have no connection, and it seems to have been placed there because it would obtain more visitors desirous of being measured and tested than if placed anywhere else. In this laboratory, which is, I believe, essentially the same sort of institution as that arranged by Mr. Francis Galton at the Health Exhibition in 1884, and is planned by Mr. Galton, any person can have the regular series of measurements and tests made upon himself for a charge of six cents. There are difficulties in the way of making a charge for such meusurements in a government establishment, and there are also difficulties in undertaking to do such work gratis, chiefly on account of the cost. It is, however, so desirable that it should be done, and the data which such observations systematically carried on for a series of years would be so valuable, not only from a scientific point of view, but for practical purposes in connection with life insurance interests, and very possibly with practical medicine, that we should endeavor so overcome these difficulties in some way, and I think it can be done sufficiently, at least, to stimulate private enterprise in this direction. It is possible that we may yet see in large cities establishments of this kind, directed by skilled and reputable physicians having the confidence of the profession, where not only normal but abnormal conditions can be determined; places where the secretions can be tested chemically and microscopically, ophthalmoscopic and endoscopic examinations of all kinds made, the mode of functioning of muscles and nerves determined, and an authoritative record of the results made for the use of the individual, as evidence of his condition, or for the information of his physician. It would require an already established reputation and much skill and tact on the part of the director of such a laboratory, with absolute refusal to give prescriptions or advice in any shape, to make it fully successful; but it may be done.

An important feature of our national medical museum

should be to show methods of research and of instruction for the benefit of the investigators and teachers of the country. This includes instruments and apparatus, and, to a limited extent, illustrations of the modes of using them and of the results; it also includes diagrams, models, etc., used for illustrating lectures. For example, as soon as Koch's researches became known in this country, physicians, and especially medical teachers who visited the museum, asked if we could show them the apparatus used by Koch and Pasteur in bacteriological work, and eagerly examined the few specimens of cultures on solid media which we were able to exhibit. The anatomist comes to the museum quite as much to see methods of mounting and preservation, as to see the specimens themselves; the physiologist does not expect to see function directly exhibited, but he does hope to find information about kymographs and constant temperature apparatus, and he wants to see whether Kühne's artificial eye is so useful for teaching purposes that he ought to get one to illustrate his lectures.

In what has been said thus far, it is chiefly the utilitarian point of view that has been made use of; but this is by no means the whole matter. No art, and no branch of science should form the sole end and object of a well balanced life, and there are objects in every large museum which are of great interest, though they appeal rather to the emotional than the intellectual faculties of the spectator. There are many specimens in the Army Medical Museum which I would rather see removed than to lose John Hunter's lancet, which has no scientific interest whatever. So also its collection of between three and four hundred medals and tokens relating to medical institutions or distinguished medical men, or commemorating outbreaks of pestilence or the victories of preventive medicine, is one which should be made complete and fully displayed, though it would not be easy to demonstrate its utility to any one unless he were interested in the history of the struggles and triumphs of the medical profession.

The objects of a medical museum are to preserve, to diffuse and to increase knowledge. Its conservative function is to form a permanent record of what has been demonstrated and to fix the meaning of terms. Even in my brief experience of thirty years the terminology of anatomy, physiology, pathology, chemistry and of most of the specialties has greatly changed, and this not only by addition of new terms, but by the dropping of old ones. To get useful results from the older literature we must know the precise significance of the old words, and, in some cases, the best way to learn this is to examine the specimens prepared by those who used such terms in their descriptions. The specimens in our museum which came from the collections of Professor William Gibson and Dr. Frank Hastings Hamilton are especially valuable, because they were the basis of practical teachings, and should be examined by any one criticising these teachings.

A large proportion of the pathological specimens in this museum illustrate conditions which now rarely occur, forming a group which it is safe to predict will never be duplicated. It is not only that they were gathered during a great war, but that they illustrate the results obtained when antiseptic surgery, as now understood and practised, was unknown. Never again, I hope, will there be brought together such a collection of the effects of pyogenic microörganisms on gunshot wounds, especially of bone, as may be seen in its cases.

The museum also preserves, for future investigations, objects whose nature or relations are not understood at the time when they are received, and which occur so rarely that the means of studying them by comparison can only be obtained through such preservation.

Upon the function of a museum as a diffuser of knowledge;—as a means of education; it is needless to dwell. That it should also strive to increase knowledge is equally certain. This is to be effected by study and comparison of its materials. The results of such study and comparison of a part of the Army Medical Museum collection have appeared in the volumes of the *Medical and Surgical History of the War*. Another part will, I hope, soon be utilized in a study of its collection of human skeletons and crania which has been commenced by Dr. Matthews, of the Army. But a considerable part is as yet only in the stage of agglomeration, and our present business is to collect and preserve, leaving to the future its full utilization.

A medical museum is really used, for purposes of study, by very few persons; but through the teaching of those few its lessons are made known to the whole profession. American physicians in investigating a subject do not, as a rule, think of inquiring as to what museums can show with regard to it, simply because they have not had convenient access to large collections and are not accustomed to make use of them. Thirty years ago we were in much the same situation in respect to medical literature; but as the libraries have grown, desire for bibliographical research has grown also, and I think that in like manner when we have secured a comprehensive National Medical Museum it will not only be made use of, but will give a powerful stimulus to the formation and progress of other more special collections elsewhere.

What should be the relation of this central national collection to those formed in different parts of the country, either in connection with medical schools, or with museums of broader scope? Certainly they should help one another, and this can be done in many ways. I do not in the least object to a generous rivalry to do the best work, to have the most instructive and the most artistic preparations. That is a good thing. But I would say to the anatomist of a school, when you have made a preparation which is noteworthy, offer to make a copy for the national collection, where it will be seen by the anatomists of all schools and of all countries. To the pathologist of a medical school I would say, after you have secured type specimens for your own collection put aside other good specimens for the National Medical Museum, which will furnish you materials for the purpose.

On the other hand, the collections of the National Museum are available for study by any proper person, and its duplicates should be used to aid other museums which may be in special need of them.

In common with several of the largest and most important medical museums, more especially those of the Royal College of Surgeons and of the Faculty of Medicine of Paris, the Army Medical Museum has the advantage of being closely associated with a large medical library which is in the same building, and at present under the same direction. The increased utility and attractiveness which this gives to both library and museum are very decided.

It is true that in some other institutions similarly arranged there has been some grumbling as to the proportion of funds allowed to the museum and to the library respectively, the museum enthusiast claiming that the librarian would rather have one rare old pamphlet than half a dozen entirely new vertebrates, while the bibliophile is sure that the demand of the profession for access to a full supply of books and journals is much greater than that for access to specimens. I can only say, from my own experience, that one who has charge of a library only, will probably not hesitate to take museum funds, if he can get hold of them, to buy books; but that when one person is responsible for both he will endeavor to give each its fair share of the resources at his command.

If we had to choose between having a great national medical library and a great national medical museum, no doubt most of us would take the library, because it would be of more immediate use to us; but no such unpleasant alternative is forced on us. There is no reason why we should not have both, and we must have both.[1]

I have time for only a very condensed statement of the wants of our National Medical Museum. In the first place it needs the intelligent interest and friendship of the medical profession of this country. To a very considerable extent it has had this; were it otherwise it would not be what it is, nor where it is. But it needs more of it, and it can never have too much. Every medical man in this country should help a little and provide for the perpetuation of his name as that of a physician interested in the progress of the profession by sending at least one specimen to it. It is omnivorous in its demands for material, as will be seen by the circular which it has recently issued. But I will name as special wants, human embryos, especially those of a very early age, monstrosities and malformations of all kinds in man or in the lower animals; results of old injuries, such as fractures or dislocations, or of surgical operations, such as excisions, stumps, etc.; injuries and diseases of the eye, ear and nose; new growths of all kinds; diseases of the brain and spinal cord; and specimens illustrating the condition of bones, joints, brain, larynx and other organs in extreme old age.

In the second place it needs a regular supply of funds from the general government. To form and keep in proper condition such a medical museum as this should be is a more difficult and expensive matter than those not acquainted with such work would suppose, and the gifts of specimens from the profession must be supplemented by ample means for the preparation, preservation and proper display of these specimens, and also for the purchase of apparatus and typical specimens of foreign work, in order that the Museum may be always able to show the latest state of knowledge and the best ways of doing things.

The annual appropriation for the Museum at present is $5000. This is sufficient, except that the printing of the catalogue, of which I shall speak presently, must be an extra charge; but the medical profession should see to it that the amount is not reduced in the rhythmic spasms of partial economy with which some of our statesmen are afflicted.

The third need of the Museum is of a series of the right kind of descriptions of its specimens, given on labels and in a catalogue. Unaided by such descriptions it has for each man that which he can see in it, and no more. One man will see nothing but an old piece of bone, a shapeless mass of tissue bleached by alcohol, a case of old, dingy brass instruments. Another will see in the same things a rare joint atrophy, implying curious abnormal nerve influence; a leprous nodule, whose history, if we knew it, would reach back through the lazar-houses of the middle ages to the far east, and whose bacilli may be the lineal descendants of those that vexed Naaman the Syrian; a case of microscopes illustrating the development of that instrument, from the first rough iron tube of the spectacle-maker of Nuremberg to the delicate and complicated instrument through which we now peer curiously into that world which lies within the world of unassisted vision. By our labels and catalogues we must tell men what to see; but to do this we must first see ourselves. The aphorism that a first-class museum would consist of a series of satisfactory labels with specimens attached means a good deal. Something has been done in this direction, as you will see on inspection of the cases; but I often wonder what sort of labels a man who has spent years in investigating the normal and abnormal structure and relations of one organ would write for our specimen of that organ. Such help as this we need; kindly, truthful criticism, the pointing out of errors and of new points of view for this mass of material.

We also need a series of printed catalogues. One of these should be in the form of compact handbooks relating to particular sections of the collection, and intended partly for the use of visitors while in the museum and partly as a ready means of letting distant friends know what material it most needs in different departments. It should also print a complete illustrated catalogue of the whole collection for the use of the investigators and teachers of the profession. Congress has been requested to grant authority for the printing of such a catalogue by the Government Printer. The material for it is nearly ready, and it would make three volumes each the size of one of the volumes of *The Medical and Surgical History of the War of the Rebellion.*

The subject of museum organization and management is one of those with regard to which it has been said that a man who is interested in it passes through three successive states of mind, viz.: First, he thinks he knows almost all about it, except a few minor points of detail which he is going to look up. Second, he feels that he will never know anything about it. Third, he believes he knows a little and hopes by experience and study to know more.

The museum needs earnest and well-trained students to work up its collections so as to advance knowledge, and, at the same time, to display properly the specimens so as to make them most instructive. To all such students we shall endeavor to afford opportunities for this work. Precisely how this is to be effected is not yet clear, but here is abundance to be done, and there are quite a number of men coming on the stage who want to do such work for its own sake, because it gives them

[1] "There are few things in relation to our science of which I am more sure than this, that every possible method of studying it should be by all possible means promoted." Sir James Paget, in Lancet, January 22, 1887, p. 159.

pleasure. Sooner or later we shall have half a dozen or more of specially trained men busy in the laboratories and work-rooms of the museum, each engaged on his own problems, and the whole for the common good.

The medical museum hints at matters which lie outside the scope of known physical and chemical laws. Physicians have not, as a rule, been very virulent theologians; their studies and their daily work tend to give them compensation of bias in this particular, and, therefore, in this age of transition in beliefs, it is not so true of them as of others, that "the old hopes have grown weak, the old fears dim, the old faiths numb." In our medical museum yonder may be found abundant illustrations of the results of physical and chemical actions and reactions upon what was once living matter, and was connected with centres of consciousness, of intellect, of emotions which imply something more than ordinary protoplasm or mere metabolism. It brings together strange company. The men who dwelt on the sides of the Andes in the old Aztec days, the men who built cities in the Gila Valley centuries before the days of Columbus, the Esquimaux, and the Indian of the plains, black and white, red and yellow, all sorts and conditions of men are represented in those bony caskets which once held their centres of life and thought; but now are reckoned only as so many crania in the Museum catalogue. The great majority of the pathological specimens imply either suffering or death, or both, of the individual from whence they came. Some of them are the results of intemperance, of lust, of folly and crime; but some are the results of unselfish sacrifice for the good of others, true flowers of blood and pain. A large group of them form one of the relics of an acute paroxysm of disease of a great nation. The old pensioner likes to keep the battered ball which crippled him, and so these relics have an interest beyond that which is purely professional. That the nation is not crippled by its loss, takes nothing from their interest, and the fact that we are physicians does not imply that we look upon them from a medical or scientific stand only. Those of the combatants who survive are now better friends than ever, and the museum specimens, coming as they do from the sick and wounded of both armies, and contributed by both Union and Confederate surgeons, enforce the lesson of the unity of the profession and of its interests, as well as that of our country.

Our museum, like the library with which it is associated, includes all the specialties. No physician is so learned or skilful that he can find no instruction there, and no one is so ignorant that he cannot comprehend some of the lessons which it teaches. Taken together these institutions should contribute in no small degree to our national prestige, for which eminence in scientific work and teaching is an essential element, and if it be remembered that they are only twenty-five years old, and that during that period we have been making medical history at a tremendous rate, surely some incompleteness and crudeness may well be excused or overlooked.

Speaking in behalf of the army medical department, and for the dead as well as for the living who have been charged with this work, I can truly say that we have been very proud of our charge, and that we have done our best, each according to his capacity and opportunities, to make the museum and library such as a great profession and a great nation have a right to demand.

AMERICAN SURGICAL ASSOCIATION.

THE PRESIDENT'S ADDRESS.

Delivered September 18, 1888.

THE RELATION OF SOCIAL LIFE TO SURGICAL DISEASE.

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THERE is no tyranny more exacting or despotic than that exercised by the conventionalities which govern our living. All stages of life from infancy to old age are under its domination. It dictates the education, the manners, the walk, the dress, the forms of speech—in fine, the whole being. Beyond all contradiction the behests of fashion are vastly more influential in governing public conduct than any arguments drawn from the teachings of structure and function. As a rule, when the conflict is between taste and reason, the victory will be on the side of taste. In nothing is this more forcibly displayed than in the apparel used to protect the body.

It is not an agreeable task to peer into the wardrobes or dressing-rooms of our fair countrywomen. I have no special taste for exploring museums or bizarre collections. Indeed, without a key to interpret the curious and ingenious mechanisms for clothing the form divine, such an exploration would be like an archæologist attempting Egyptology ignorant of cuneiform inscriptions. I have, however, some knowledge of human anatomy in its broadest sense, and when I look upon the masterpieces of the human form, whether in marble or on canvas, a Belvidere Apollo or a Venus de Medici, and contrast these with the dressed-out specimens of modern women, I am forced to admiration; not so much at the amazing ingenuity displayed in concealing the divinely appointed form, as at the plasticity and patient submission of mortal clay under the despotism of a conventional inquisition. Were these processes of mutilation and abnormality harmless, did the body consist of a mere mass of protoplasm capable, under the application of certain stimuli, of assuming normally protean shapes, the subject might be passed over with the feeling of a naturalist, but this is not so. These violations of the laws of structure bring with them serious penal inflictions, which, did they terminate with the original offender, might be dismissed with a sentiment of pity, but projecting, as they do, their baneful consequences to successors they become proper subjects for criticism.

Let me name a few examples as illustrative of my subject. For some time the profession has been speculating on the causation of

NASAL AND POST-NASAL CATARRH,

with its accompanying auditory defects, the growing frequency of which cannot have escaped general observation. Doubtless no single agency will explain the presence among us of this unpleasant disease, yet there are facts connected with this affection which to me are very suggestive. I cannot recall an instance in which I have met with the disease among females belonging to the Society of Friends, Dunkards, or Mennonites. If this, on more extended observation, proves to be true, may not the head-dress peculiar to these people be accepted

in explanation of their exemption. The bonnet which at one time overshadowed the entire head, as all know, has been gradually shrinking in its dimensions, until it has become a mere shadow of its former self, and offers no protection whatever to the head. As a substitute, I would not insist upon the quaint headgear of the Friend, though I believe that any modification which will protect this part of the body will lessen the tendency to catarrhal inflammation of the naso-pharyngeal mucous membrane.

MUSCULAR RESTRAINT.

A legion of physical imperfections arises from muscular restraint. Among these may be mentioned weak ankles, narrow or contracted chests, round shoulders, projecting scapulæ and lateral curvature of the spine. The foolish concession to appearance and the unwise partiality of parents for enforced systems of education, the demands of which bear no just proportion to the capacity of the infantile mind, constitute the initial or determining force of these physical imperfections. In many cases the weak ankles of children, characterized by eversion of the feet, thus allowing the superincumbent weight of the body to be transmitted to the latter, inside of the proper centre of support, is largely chargeable to the miserable practice of placing on the little ones, long before they are able to walk, boots tightly laced up the limb some distance above the ankles. The confinement of the flexor and extensor muscles by this constriction prevents that free play of movement which reacts so favorably on all the elements of an articulation, and that, too, at a time when the growing forces are at full tide, so that when the time arrives for standing and walking, the muscles are unequal to the firm support of the joint. The consequence of this feebleness is soon seen in the turning outward of the feet, throwing the strain on the internal lateral ligaments, which in turn become elongated through growth, and thus the defect becomes established, but the evil does not terminate here. The calcaneo-cuboid and the astragalo-scaphoid ligaments, losing the proper support of the tendon of the posterior tibial muscle, under the abnormal tension begin to yield and to the deformity of eversion is added that of "flat-foot." That the above is not a mere hypothetical explanation of the ankle defects I have many times verified by finding the threatening symptoms disappear after liberating the imprisoned muscles and subjecting the enfeebled parts to a judicious massage. Under no circumstances, as is too often the case, should instrumental apparatus be applied, unless in cases in which, from neglect, the deformity is thoroughly established and is progressive.

Take another deformity, that of bow-legs. On the earliest signs of the unsightly curve, the limb is too often trammelled with irons, and the growth of the muscles arrested, when it is well known that if manual force be systematically applied two or three times a day the limbs will gradually assume their typical form.

Again, in further illustration of our general text, take, as an example, a child who for one long or two short sessions, for six days of the week, sits over the study desk, compelled to assume a position in which, from the inclination of the body, the shoulders fall forward, the head being supported, most probably, on the elbows and hands. In such a posture, the great serratus and pectoralis major and minor muscles are in a state of relaxation, while the erector spinæ and trapezei muscles are in a state of tension. This change in the position of the shoulders gives the scapulæ over, without antagonism or resistance, to the action of the rhomboidei and the levatores angulæ muscles, which, acting conjointly, cause that projection of the lower angle of the shoulder-blades, which the older anatomists termed "scapulæ alatæ." To all this must be added the very important factor of four to six hours in the school-room, and two hours, at least, of home preparation for the following day's recitations, during which time the respiratory functions having been reduced to a minimum of activity, the muscles of the chest are comparatively passive and aëration of the blood tardy. Certainly no combination of conditions could be better devised for forming contracted chests and round shoulders. It is not long before the watchful eye of the mother detects the change in the figure of her child. She will probably discover this and take alarm, even when the pale face, the languid air, and the capricious appetite of the child cause no anxiety; and then comes the second act in the drama of physical deterioration, namely, a resort to shoulder braces and stays, in order to accomplish that which the muscles should be taught to do without restraint or incumbrance.

LATERAL CURVATURE.

While it is true that lateral curvature of the spine depends upon causes both central and peripheral, yet in no small number the deformity is clearly attributable to influences of a social nature. The young column, by reason of the non-union of the epiphysis and diaphyses, and the supple character of its ligaments, is extremely flexible. Whatever, therefore, destroys the muscular equipoise, however inconsiderable the force, if persistently repeated, changes the centre of gravity and develops primary and compensating curves. For six months in the year, any fine morning, groups of young children may be seen plodding along our streets with a miniature library of books suspended from one shoulder. To the already preponderating scale of the balance, add the additional factor, a probably badly arranged light, compelling these little *savants* to assume a lateral inclination of the body in order to obtain the necessary illumination of the subjects of the study, and you have all of the conditions necessary for perpetuating the lateral deformity. "Just as the twig is bent, the tree's inclined." As in the case of round shoulders, so here, in order to prop up the falling column, instrumental contrivances are immediately called into requisition. The body is encased in a formidable coat of mail, to be followed by muscular atrophy and permanent distortion of one of the otherwise most beautiful pieces of mechanism in the human frame. It is true that in most educational institutions for the young, provisions are made for physical culture, and these are in some measure antidotal to the evils complained of, but, in my judgment, do not at all compensate for that free unstudied romp in the open air, untrammelled by the hard and fast rules of calisthenics, so fascinating to the young child. Nor does the evil end here. While the forcing process, which is to stimulate the mental powers far beyond the real capacity of the immature and growing brain to receive, is in progress, another is inaugurated, which is to qualify, especially the female child, to acquit herself with distinction when the

time arrives for entering the great world of society, or, as Thomas Brown would style it, "for the frivolous work of polished idleness." The gait and carriage must be reduced to prescribed rules, the voice toned down to a drawl or trained to move like a mountain torrent. The muscular apparatus of the face must be taught to express, not the spontaneous and natural outflow of feeling which wells up unbidden from the magic chamber of the heart, but rather to produce an effect; and so this work of transformation goes on until it culminates in the full-blown society girl. Is it any wonder that, under such a scheme of education, conducted throughout by a studied disregard of both the physical and mental constitution, and exercising, as it does, such tremendous drafts on the nervous system, that the world is becoming filled with a class of flat-breasted, spindle-limbed young women, unfitted for the varied and responsible functions of womanhood; qualifications, too, which, under a different regimen, and directed into proper channels, would exert a most potential influence on all the great social and moral problems of the age?

While thus plainspoken on the frivolous methods of living, I do not wish to be understood as being unfriendly to the highest cultivation of the mental and physical powers, if conducted on lines in harmony with the organization, nor to any technique which may conduce to personal grace or elegance of manners, so that the manly or womanly personality of the individual be not sacrificed to the Moloch of sentiment and sham. Indeed, indifference to these things is inexcusable in either man or woman as not only lessening their influence in the world, but, in many respects, disqualifying them for the highest discharge of the duties of modern life. Valuable as may be the unpolished diamond, yet it is only after the wheel of the lapidary has worn away the dull incrustations that its true brilliancy is revealed and the gem is fitted to adorn the brow or the breast of beauty.

BODILY CONSTRICTION.

In the further discussion of my subject, I may next notice the evils of visceral displacement and pressure consequent on abdominal constriction. Whatever may be said in regard to Greek and Roman life, the infinite care which these people displayed in developing and maintaining the very best type of the human form, is worthy of admiration. The Ionic "cheton," spoken of by Attic writers, and so often represented in the bronzes of Herculaneum, while it would not exactly satisfy the modern idea of dress, was, at least, free from the charge of interfering with the contour of the human figure. The painters and sculptors of those classic days were reverent students of nature. Their delineations were true to life. Their works furnish us with no hour-glass contractions of the human body. The constriction of the waist operates injuriously on both the supra- and infra- diaphragmatic organs. Any force acting on the base of the thorax and preventing the expansion of its walls, concentrates the function of respiration, which should be general on the apices of the lungs; and hence, under these circumstances, the movements of breathing are, for the most part, confined to the summit of the chest. As the initial seat of tuberculosis is located at the upper part of the lungs, may not the inordinate work entailed on these parts by constriction, have some part in hastening such deposits in the female when the predisposition exists? It is this forcing inward of the costal border of the thorax which causes the groove on the anterior surface of the liver, so familiar to anatomists. This pressure cannot fail to interfere with the descent of the diaphragm and with the functions of the gall-bladder and duodenum, and exercises no small degree of influence in favoring the formation of biliary calculi, females being peculiarly prone to such concretions. The extent to which the liver may be damaged by extreme constriction of the waist, is well illustrated by a case quite recently reported in the *British Medical Journal*, in which a considerable portion of the left lobe of the liver had been separated from the right, the two being connected only by a band of connective tissue, which enabled the operator to remove the detached mass without difficulty.

The evil effects of this constriction on the viscera of the abdomen and pelvis is most strikingly witnessed in the embarrassed portal circulation, in the different uterine displacements, elongation of ligaments, displaced ovaries, tubal inflammations, hemorrhoids, hernia and other morbid conditions which either prevent or disqualify the woman for the exercise of those functions of maternity, and which, in addition, through reflex influences, entail a host of functional disorders reaching into every avenue of the body, and invading both the mental and moral constitution of the victim. So prolific have these infirmities become that a new department of surgery has been organized for their special management. To what, if not to social causes, can these morbid changes of structure in the pelvic organs, especially of the uterus and its appendages, be attributed? Why should laceration of the cervix uteri be so common an accident? Labor is a natural process, and ought not, under ordinary circumstances, to be attended by lesion of uterine tissue. I can conceive of no agency more likely to induce that muscular degeneration which predisposes to this accident, than the modes and methods of modern living, especially among the inhabitants of great cities. In the expression "modern living," much is embraced. It includes culinary pharmacy, overfeeding and drinking, insufficient or injudicious exercise, improperly heated apartments and a disproportion between the hours of exercise and rest.

Contrast, if you will, the muscles of the hardy, country housewife, who, bearing the cares and responsibilities of a dependent family, bustles about the live-long day indoors and out-of-doors, eats with a relish her plain and simple fare, repairs at reasonable hours to bed, and sleeps the sleep of the beloved, undisturbed by dyspeptic night-mares, and rising with the golden dawn, resumes the round of domestic toil with a clear head and supple limbs; I say, contrast this type of a class with that of another, the woman born to luxury and ease whose capricious and exacting taste taxes the art of the professional caterer, who drags out the morning hours toying with some crazy piece of embroidery or trashy novel, lunches at one, rides out in the afternoon for an airing of two or three hours, returns to a dinner of five or six courses at seven, completes the evening at the opera, the theatre or the assembly, and coming home after midnight, crawls into bed weary and exhausted in body and mind, only to rise with the best hours of the morning gone, for another day of aimless routine life.

Can it be doubted that in the first case, with a digestion unimpaired, with the products of textural change consumed by functional activity and eliminated through the proper emunctories, the woman should possess a vital resistance and a tone of tissue altogether superior to that of the other, whose habits of living must necessarily favor their faulty metamorphosis?

To these same agencies must be attributed that brood of nervous and hysterical evils, for the relief of which the gynecologist too often, I fear, invades the domain of womanhood, around which her whole sexual nature revolves, and which, save only in the direst extremity, should be sacred against all operative intrusion.

LATE MARRIAGES

constitute another social evil, the penal inflictions of which involve both sexes alike. Pride and luxury determine long engagements or deferred proposals. Marriage, it is believed, necessarily involves an establishment, a display, a retinue of servitors. The good old notion of two souls being united in wedlock for the purpose of being mutual helpmates and patiently, together, working up from modest beginnings to affluence, seems to be entirely at variance with the modern idea of this relation. In the meantime the young man is betrayed into unlawful sources of gratification, alike destructive to moral and physical purity, the pollution of which incontinence is often subsequently communicated to and perpetuated in wife and offspring. I would not dare to say how many cases of this nature have been entrusted to my professional confidence, though I doubt not my experience does not differ from that of many of my professional brethren whom I address. It is under such circumstances that many of those infective inflammations of the Fallopian tubes, as salpingitis and pyosalpinx, arise, which entail the most serious deterioration of health.

THE FOOT AND THE SHOE.

It may be thought by some persons that the subject of the foot and the shoe is not of sufficient dignity to appear in a public address. The Romans and the Greeks thought differently. The literature of both people is full of references to the shoe worn by both sexes. So important, indeed, are the feet to the well-being of the body that whatever impairs their usefulness, either for support or locomotion, becomes a positive calamity. Nothing can be more unlike the human foot than the modern shoe. Let any one leave the impress of his or her foot in the wet sand of the seashore, and then place alongside of the imprint a fashionable shoe; that the two were ever intended for each other would scarcely strike a child of the forests. The North American Indian entertains juster notions about clothing this portion of his body than does the civilized denizen of New York or Philadelphia. Compare the moccasin with the shoe of the city belle. Compare the σανδαλον or the περσιχαι of Pollux and of Aristophanes with the same, and we shall see that the savage and the polished Greek alike understood the value of sound feet in the race of life. It is the imperfect adaptation of the shoe to the foot which constitutes the fruitful source of tired ankles, corns, bunions, over-lapping of the toes, and ingrowing nails. Some idea may be formed of the magnitude of the evil from the fact that of eight hundred patients under the care of a prominent chiropodist of Philadelphia, the great majority of the defects were entirely attributable to the high heels and the contracted toes of the shoes. Especially do these physical encumbrances arising from a blind submission to social laws operate disadvantageously to our fair women at the beginning of the new dispensation requiring both muscles and brains, and when her friends propose to sweep away all the old traditions and claim for her the earth with all its masculine employments.

GAMES AND AMUSEMENTS

which in themselves are proper and praiseworthy, too often become developed into a craze, working both moral and physical mischief. Professor Leuf, himself a professional in the national game of base-ball, has described the "pitcher's arm" a condition of over-taxed function, and one in which all the anatomical elements of the upper arm are involved. There is also the tennis arm, and the swollen supersensitive prostate of the bicyclist, both due to the abuse of popular amusements.

DEFECTS OF REFRACTION,

or visual defects constitute another class of affections fairly attributable, in many instances, to social influences. The number of children which may be seen in our streets any day wearing glasses, has become a matter of common observation. It is far from being probable that the most exquisite piece of mechanism, the human eye, came from the Divine Artificer, imperfect. Because eyes are young, it does not follow that they are thereby better fitted to sustain prolonged use. Just the reverse is true, and it is high time that parents and educators begin to recognize the fact. The power of the eyes for continued use, like that of other organs of the body, is one of gradation. It moves in the general procession and strengthens with the advance in life, until development has attained it zenith. Not only so, but the eye being a part of the body it must suffer or rejoice through the operation of general causes. A bone may have its normal curves changed, a tendon may slip from its appointed groove, or a bloodvessel be destroyed and yet very little disability be realized, but the eye is made up of such extremely delicate structures, and acts according to fixed physical laws, that not the slighest alteration of a curve, or the mobility or density of its media, can occur without great vitiation of function. To exact, therefore, long hours of study from children of a tender age, involves a degree of functional strain altogether disproportionate to the structural resources of the organ and, by disturbing the orderly processes of nutrition, gives rise to hypermetropia, asthenopia, astigmatism and its companion, headache. That the picture is not too highly colored, or the sensation overstrained, we have only to contrast the children born and reared in those portions of the country not too much dominated by the methods of modern civilization, and who rarely demand a resort to artificial aids to provide for abnormalities of vision. The only remedy for the evil where infantile scholarship is insisted upon, is the Kindergarten, or object system, the most natural and effective plan of impressing the young mind.

RENAL DISEASE.

Is there any reasonable explanation drawn from sources of a social nature for the great frequency of these renal disorders, which come more particularly under the care of the surgeon, as crystalline deposits and calculi? For

maintaining the general health at the highest physiological standard, a proper quality of food and the proper disposal of tissue waste are essential conditions. Along with wealth and luxury come the abuses of the table. Americans are fast becoming a nation of dyspeptics. Our country is so rich in the products of every zone, that nowhere else in the world can you find such a variety of foods, animal and vegetable. These foods manipulated in a thousand ways, by the subtle art of the professional cook, almost necessarily betray one into excess, and also create the desire for wine and other alcoholic beverages to aid the stomach in disposing of its plethoric supply.

In great cities, which furnish relatively the largest number of cases of renal disease, affecting preëminently the mercantile and sedentary classes, we find just the conditions favorable to their development. The competitions of trade keep the merchant always at white heat. Time is golden, and the street car and other means of conveyance annihilate distance, and the ride is substituted for the needful walk. A hasty lunch at the most convenient restaurant satisfies the inner man until the business of the day is closed, when, weary and worn, he is driven to his home to partake of a course dinner, the balance of the evening to be spent on the lounge with the evening paper, or the latest periodical. To the literary man the fascinations of the study and the library charm him away, with their siren voices, from the fields and the highways, until bodily exercise grows distasteful and repugnant. In the meantime there has been no provision made for the waste or tissue metamorphoses of the body through that great agency, exercise. These accumulate in the blood, the internal eliminating organs, of which the kidneys are chief, are overtaxed and then follow the evils of malassimilation and of excretion, in the form of urates and oxalates, often resulting in the formation of calculi.

In conclusion, may we ever hope for a time when the race will realize that these bodies which we wear, which God has so highly honored by his own incarnation, are sacred temples to be kept in harmony with recognized physical laws, and not to be made instruments of mere animal gratification.

ORIGINAL ARTICLES.

A CASE OF CÆSAREAN SECTION.[1]

BY HOWARD A. KELLY, M.D.,
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IT has been my good fortune to operate successfully upon two cases of Cæsarean section in this city, on April 17th and May 30th of this year, the indications being, respectively, absolute and relative.

While, in the case of the absolute indication, no possible discussion can arise as to the advisability of operation, especially since the publication by Dr. R. P. Harris, of the wonderful results following the introduction of the accurate method of suturing introduced by Sänger; as to the relative indication there is still abundant room for careful discussion, and its consideration would be beyond the scope of the present paper. The writer hopes, however, at no distant day, to present the second case as a basis of a full consideration of this very important topic. The great work of Dr. F. Caruso, upon Cæsarean section, in preparation in the Italian language, will be of the utmost value in settling this question within its proper limits.

CASE. *History.*—Mrs. J., a patient of Dr. A. B. Ireland, a slight, delicate American, four feet six inches in height, twenty-five years old, was at full term on April 3d, when she was taken with labor pains; she went on some days with irregular pains, until they finally became so strong that she sent for her physician, Dr. Ireland, on the 8th, who stayed with her from nine o'clock in the morning until four in the afternoon, returning again in the evening, feeling sure that, from the character of the pains, her strong straining, bearing-down efforts, the termination could not be far distant. On the day following this visit she had one marked and two slight epileptic seizures. From the date of this first visit she remained in her bed until delivered by Cæsarean section. She suffered continuously from distressing, bearing-down sensations, with remissions of hard labor pains, resembling those of the later stages of labor. The midwife, who cared for her under Dr. Ireland's direction, gave an excellent circumstantial account of her condition throughout this period, stating that in her fifty-one years of experience she had never seen a woman in such strong labor pains. In spite of the time she had been in labor and the efforts she had made, the os remained very small, and the cervix rigid. Dr. Ireland made careful, but unsuccessful attempts to effect a manual dilatation. The waters ruptured on the tenth day.

On Monday evening, the thirteenth day, at eight o'clock, all pains ceased, suddenly returning on Tuesday, when her expression was one of marked collapse, and she was too weak to give expression to her distress. Dr. Ireland called Dr. A. A. Starck in consultation. They decided that Cæsarean section was the only possible means of rescue, and sent for me with an accurate statement of her condition. I had the good fortune to have at my house at the time Dr. Robert P. Harris, and Prof. Gardner, of Montreal, who accompanied me.

Dr. Robb and the matron of my hospital, Miss Little, assisted me in the operation. The matron made all necessary preparations in a few minutes, and no time was lost in reaching the patient, who was found profoundly collapsed, with a pulse of 142, a tympanitic abdomen, the uterus prominently vaulting the anterior wall. The pelvic measurements were: Sp. i. 19 cm., cr. i. 25 cm., d. B. 15.

The tissues within the pelvis were found to be œdematous, hard, and hot, and it was impossible to recognize special structures, with the exception of the hard, infiltrated cervix; the pelvis being literally choked with the hard, unyielding mass, above which lay the child's head, which it was impossible to reach. The rapid, feeble tones of the child's

[1] Read at the meeting of the Philadelphia Obstetrical Society, September 6, 1888.

heart showed that it was still living. The patient was examined carefully by both Doctors Harris and Gardner, who unhesitatingly concurred with the views of Drs. Ireland and Starck. The decision was: Cæsarean section indicated, prognosis unfavorable. The patient was at once etherized. The operation was conducted with thoroughly antiseptic precautions, with the exception of disinfection of the room and the neighborhood—the patient living in a frame house in a densely crowded section of the city. Minuter details from the etherization to the final dressing will not be dwelt upon.

Operation.—The time occupied from the beginning of the operation to the last suture in the abdominal wall was thirty-five minutes. After shaving, washing, and thoroughly disinfecting the abdominal wall with a bichloride solution, the field of operation was hemmed in on all sides by cloths wrung out of a five-pro mille solution. The instruments and hands of the operators, and the parts of the patient involved in operating, came in contact with these cloths, and with nothing else in the room. An incision seven inches in length, extending above and below the umbilicus, was made in the median line, and the uterus delivered through it; a rubber ligature was thrown around the cervix provisionally, and a large cloth laid behind the uterus, covering the incision and retaining the intestines. An incision was now made in the uterus near the fundus extending down toward the cervix, which cut across the placenta at its centre (*plac. præv. centr. Cæsar*). Great care was taken not to cut the placental vessels. The placenta was separated readily, and the nearest presenting part caught, proving to be the leg of the child lying in the first position. The child was delivered, membranes and all up to the head, which was firmly wedged at the superior strait, requiring almost a minute to free it, accomplished by inserting the fingers in the mouth and making a pair of forceps of the hands.

Prof. Gardner took possession of the child, which he resuscitated with difficulty to a condition of feeble vitality after persevering in his exertions for half an hour, when it gave its first cry. The placenta and decidua came away with the child. The appearance of the uterus was healthy. The uterine wound was closed by twelve deep and twelve superficial silk sutures, introduced as prescribed by Sänger, of Leipzig. The cloth and the constriction tube, which lay loosely around the neck of the uterus, were removed, and the contracted uterus dropped into the abdominal cavity, which was clean and free from blood. The external incision was closed by seventeen deep and twelve superficial sutures, the wound dressed, and the patient returned to bed.

Up to this time the case is an interesting one on account of the peculiarity of the indication, being one which might arise in a normal pelvis, labor being obstructed by abnormality in the fœtus; the indication here was similar in character to that presented by tumors obstructing the pelvis. Consideration for the life of the child, after such prolonged and severe labor, was not a factor in the decision. Had the child been dead it could have been delivered in no other way.

The after-history presents some points of remarkable interest; on the day following the operation she suffered much from tympany, nausea and vomiting—a continuation of her previous condition. Her pulse was 144, and the temperature 99¾°. Upon taking Epsom salts in concentrated solution, followed by the citrate of magnesia, she had a very large movement, filling a bed-pan. The next morning, pulse was 88 and the temperature normal, where it stayed until the tissues in the vagina began to break down. She took nourishment well from the first, improved at once in appearance, and passed urine voluntarily from the second day up to the secondary period of disturbance from the œdematous pelvic tissues. The child, which was small and wizened, became jaundiced on the third day, dying at the end of a week.

She complained of much pain on the 21st, when all the stitches in the abdominal wall were removed, letting out some dark, grumous pus just below the navel, giving immediate relief. I found, also, that in the pocket in which the child's head had lain, above the undilated portion of the cervix, and below the contraction ring—that is, in the upper part of the lower uterine segment, there was a large accumulation of clots. These I carefully removed, keeping the whole tract clean by repeated douches. The abdominal incision broke down in its upper part, extending downward, and showed at one point the anterior wall of the uterus adherent to the abdominal wall. The infection which, starting in the inflamed vaginal tissues, extended upward, developed for two days a condition of physometra, which disappeared as soon as the opening into the uterus was visible per abdomen, when the whole tract was irrigated from above downward. The infravaginal cervix sloughed away, a large mass crackling with air vesicles, and, with the rapid discharge of all débris, she passed through a period of great danger from septic absorption, with but the slightest symptoms of discomfort.

The note of the 27th, ten days after the operation, states, "patient looks and feels perfectly well, has a bright, happy expression. Pulse 72, temperature normal. Natural movement. Slight, thin discharge from abdominal wound, which is filling up with abundant healthy granulations." Four days later she had a chill, followed by a mild phlebitis, from which she recovered rapidly. I have not seen her since my return from Europe, but Dr. Harris tells me she is well, only needing that the narrow cicatricial cervix be dilated, to allow her to menstruate per vaginam instead of per abdomen.

I am indebted to Dr. Harris for some valuable statistical information, which I shall present in a more formal paper at a future meeting. This is the ninth case of Cæsarean section with preservation of the uterus, performed in Philadelphia. The last successful case was that of Prof. Gibson, of the University of Pennsylvania, fifty-one years ago. The cases operated upon from that time to the present were, almost without exception, received in a condition in the highest degree unsatisfactory to the operator.

In outline the following features appear remark

able. The length of time the patient was in labor—being fourteen days. The pulse at the time of the operation was 142. The agglutination of the uterus and anterior abdominal wall, as observed in Prof. Gibson's and other cases, which in this case prevented general infection of the peritoneum. The remarkable pocket for discharge formed below the contraction ring and above the undilated portio vaginalis.

An important factor, I think, in determining her recovery was that, without undue haste, by quick work, and having all necessities within easy reach, I was able to complete the operation in thirty-five minutes. I have omitted most of the details which are usual in these cases, but cannot close without a tribute to the care and faithfulness of the physicians who visited her during her convalescence, doing often the work belonging to a nurse. Those who have anxiously watched bad surgical cases, sacrificing every personal inclination and convenience while the patient's recovery was a question, will appreciate how much is implied.

MEDICAL PROGRESS.

Cocaine for Pruritus.—Conceiving the iodoform dermatitis mostly the result of the scratching induced by itching—that is, that iodoform only gives rise to itching and inflammation of a moderate degree, GEYER (*Pest. Med. Chir. Pr.*, No. 31) has successfully used cocaine in this affection. As soon as the irritation is perceived the part is brushed two or three times with a ten to fifteen per cent. solution of hydrochlorate of cocaine. With the cessation of the itching the dermatitis also disappeared—that is, it did not occur. In case the dermatitis had attained to some degree, so that vesicles already existed, cocaine checked the itching and the progress of the inflammation, but it failed to hasten the retrogression of the vesicles. Geyer has also with success used cocaine in other itching, cutaneous affections; for instance, in the case of a woman, in whom, at the menstrual period, a circumscribed, urticaria-like, intensely irritating eruption appeared at various parts, from its severity disturbing sleep. The itching was diminished by applications of cocaine, and subsequently, upon timely application, entirely relieved. Finally, Geyer applies cocaine for the itching of urticaria.—*Wien. medizin. Presse*, No. 34, 1888.

Salicylic Acid in Metrorrhagia.—FELICI (*Gazetta degli Ospitali*) reports two instances of surprising results from the use of salicylic acid in metrorrhagia. In the one, the hemorrhage was due to carcinoma and resisted all treatment. By means of a carbolated tampon, moistened with a solution of salicylic acid, Felici was enabled to check the bleeding in a few minutes. The second case was that of a woman, who was taken with such severe hemorrhage during the menopause that collapse occurred. After the ordinary remedies had been fruitlessly applied, Felici tamponed the uterine cavity with a cotton plug, moistened with a solution of salicylic acid, whereupon the bleeding permanently ceased.—*Wiener medizin. Presse*, No. 34, 1888.

Uterine Tympanites relieved by Creolin Irrigation.—BRAUN (*Wiener medizin. Presse*, No. 34, 1888) reports that in all cases in which creolin was used at the Cracow clinic for gynecology and obstetrics the result was entirely satisfactory. Naturally creolin was chosen in preference to corrosive sublimate and carbolic acid in such cases in which danger of intoxication existed. The results were admirable in two cases of uterine tympanites followed upon protracted labor. The first case was that of a multipara, in which the liquor amnii had been evacuated five days before. Tympanitic resonance was manifested over the uterus. After delivery with the forceps, a foul-smelling, gaseous, dirty fluid escaped. Notwithstanding the existing fever, after irrigating the uterine cavity with a two per cent. solution of creolin, three times daily, the trouble was relieved, and in fifteen days the patient was discharged. In the second case there was a shoulder presentation, labor lasting five days, the fœtus was putrid, the temperature 104°, pulse 130. After applying irrigation as already mentioned the septic inflammation of the uterine mucous membrane disappeared.

For Migraine.—

℞.—Antipyrine	ʒj.
Old rum	ʒv.
Syrupi limonis	ʒvij.
Aquæ	℥ijss.—M.

Sig.—ʒij, as required.

—*L'Union Médicale*, August 25, 1888.

Dyspepsia of Infants.—

Acidi hydrochloric. diluti . .	♏xv.
Syrupi aurantii	ʒjss.
Tincturæ aurantii	ʒj.
Infusi cascarillæ	ʒjss.—M.

Sig.—Teaspoonful twice daily.

—*Journal de Médecine de Paris.*

Treatment of Burns.—WENDE speaks very highly of a dressing for burns, composed of cocaine, four per cent., and lanolin. This mixture should be freshly prepared and the cocaine perfectly pure. It assuages pain immediately and the healing takes place rapidly.—*Journal de Med. de Paris.*

Untoward Action of Sulphonal.—The following case, reported by DR. SCHUREY, in the *Therapeutische Monatshefte* for July, is interesting, as illustrating the untoward action of sulphonal. A patient of sixty-one years, with arterio-sclerosis, suffered with attacks of angina pectoris and insomnia. By the use of amyl nitrite the attacks were aborted and the intervals between them lengthened. The sleeplessness was successfully overcome by the use of amylene hydrate. The patient, after a time, unwilling longer to take the latter, on account of its disagreeable taste, sulphonal was prescribed in doses of thirty grains. The result was surprising. Soon after the ingestion of the drug the attacks of angina pectoris recurred with great frequency; a few minutes after one attack was checked by amyl nitrite another began. This lasted throughout the night. There was no real sleep, but two hours after the administration of the remedy a sort of half slumber, interrupted by frequent attacks, was had. For the next two days the attacks continued with increased violence and frequency. The author cautions against the administration of sulphonal in cases of arterio-sclerosis.—*Wiener medizin. Presse*, July 29, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, SEPTEMBER 22, 1888.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Two years ago the American Surgical Association suggested to its kindred special societies the organization of a Congress of American Physicians and Surgeons. These societies cover all the principal departments of medicine, and their membership, which is elective, includes the best known workers in the various specialties. The idea of their coördination was a happy one, and the plan promptly met with a hearty approval. This week has witnessed the realization of the project in the Joint Meeting of the American Surgical Association, the American Association of Genito-Urinary Surgeons, the American Laryngological Association, the American Climatological Association, the Association of American Physicians, the American Otological Society, the American Ophthalmological Society, the American Neurological Association, the American Dermatological Association, the American Physiological Society, the American Orthopedic Association and the American Gynecological Society.

The twelve special societies met in Congress, and also, preserving their autonomy, have at the same time held their usual annual meetings, as it were as sections of the Congress. The result was all that had been hoped for. The value of the scientific work done by these special societies for years past is well known, and the same high standard was preserved in the proceedings of the Congress, as will be seen on reference to our report of the proceedings.

This initial session has shown that the Congress is held purely in the interests of medical science and its advancement, and that the plan of organization has been so wisely devised that politics, the blight of so many fair projects, is effectually excluded. No executive business, not even the election of officers, is transacted by the Congress. It meets solely to listen to and to discuss scientific papers. Its members are the active clinicians, authors, and teachers of to-day, and the joint discussion by them of the practical problems in medicine and surgery which are pressing upon our attention at present, cannot fail to contribute materially to their solution and to the advancement of our knowlege.

The plan of organization met with cordial approval, and the selection of Dr. Billings as President was regarded as a just tribute to a distinguished member of the profession and a merited recognition of his laborious and unselfish devotion to the cause of medical science and literature.

The social phase of the Congress was a feature which is not without its importance. It served to bring into pleasant personal relationship men in the different departments of medicine, who were well known to one another by reputation, but who, perhaps, otherwise might never have been brought together; and they will hereafter have the advantage of the greatly increased interest which always attaches to the researches, writings, or teachings of those with whom one is personally acquainted. Moreover, in our daily reading, the personal equation is a not unimportant factor in enabling us to estimate correctly the value of scientific contributions. The social arrangements at Washington were, in every respect, admirable. The general dinner on Monday evening, and the receptions on the other evenings, gave the members the fullest opportunity for mutual, social intercourse.

The Congress, in its membership, constituted one of the most notable medical gatherings ever assembled in America. Among its participants were a very large proportion of those who are everywhere recognized as guiding our medical thought and advancing the reputation of American medicine. The brilliancy of the gathering, too, was heightened by the presence and participation in the proceedings of a number of eminent *confrères* from across the water.

The Congress will meet triennially at Washington, and the second session will be held in the autumn of 1891.

THE PRESIDENT'S ADDRESS.

FOR his address, as President of the Congress of American Physicians and Surgeons, DR. BILLINGS chose a novel and interesting subject, one which, so far as we know, has not before been dealt with in so exhaustive a manner. Naturally enough, as Curator of the Army Medical Museum, which has so recently been placed in suitable quarters, he felt the occasion appropriate to tell the story of its origin and growth, to explain its wants, and to say something upon the advantages of collections to medical schools and to the profession.

When a physician in a strange city wishes to estimate the scientific standard of its profession, let him visit its medical libraries and museums. They are the indices of progress and of work, as infallible as crowded docks and busy streets are of commercial enterprise. It means that there are men in that town, "whose labor and thought have not been confined to their own interests," but who have been zealous in those things which, after all, make a profession great. And visitors to this country when they inspect the beautiful collection at Washington, see a monument not unworthy of the Army Medical Department, and of the profession at large. It is a matter of pride and congratulation that within the short space of twenty-six years the museum has reached such proportions that it now ranks as one of the eight largest in the world. And let us not forget in these congratulations the little Circular No. 2, issued on May 21, 1862, by Surgeon-General W. A. Hammond, to whom the great honor belongs of starting the work.

The elaborate review of the museums of this country and of Europe is not only of value in itself as a record of unusual interest, but it will arouse, we trust, our medical schools to a proper sense of the value of collections as a means of instruction. With the exception of half a dozen of the larger colleges, very few of the teaching bodies make adequate provision for securing and preserving specimens. One great difficulty is the expense, but harder still is it to obtain men with the necessary enthusiasm. The Warrens, Wister and Horner, Mütter and James R. Wood, whose names are attached to some of the most important medical museums of the country, were great teachers, practical men, who knew the value of specimens in illustrating lectures. Would that they had more imitators in the present day and generation.

The capabilities and needs of the collection at Washington are now plainly before the profession. Evidently it is the desire of the Surgeon-General and Dr. Billings to have such an exhibition at Washington, that a physician from any part of the country, visiting the capital, can have an opportunity of seeing a complete array of physiological, anatomical, surgical, and other apparatus and specimens. Everything, for example, from a plethysmograph to a percuteur, and from an elaborate dissection of the solar plexus to a well-displayed series of anomalies of the epigastric artery. In time, we have no doubt that the museum will be in this way as much used as the library as a means of education. Meanwhile, every physician throughout the country is called upon to do his share in the work and to aid in making the collection such as a great profession and a great nation have a right to demand.

THE YELLOW FEVER EPIDEMIC.

THIRTY years ago the opinion prevailed in several of our southern seaports that yellow fever was a necessary evil, an endemic disease due to climatic causes, in connection, perhaps, with local insanitary conditions, and, consequently, that it was not to be excluded by any quarantine restrictions. Now we know better and have ample data to demonstrate that this pestilential disease is nowhere endemic on our shores. Having this knowledge, the question of responsibility for the epidemic prevalence of the disease at once presents itself when we see repeated at Jacksonville in 1888 the heartrending events which marked the progress of this disease in 1878 in the States of Alabama, Louisiana, Mississippi, and Tennessee.

History repeats itself in these yellow fever epidemics; the reluctance to admit that the enemy has obtained a foothold; the concealment of early cases and the attempt to call them by some other name; the vain hope that the disease will not extend—that there will not be much of a shower after all; the mistaken reliance upon not being afraid, or upon the burning of tar barrels and the firing of cannon; the assertion that the early victims died from their own fault—from fear, imprudence, or something else than the malignant poison which already infects the atmosphere; the sudden terror and "stampede" when the nature of the disease is generally recognized and a few prominent citizens have become its victims; the attempt to effect a general exodus of the population when other communities are terrified and when sanitary cordons and shotgun quarantines

are the order of the day; all this is an old story to those who are familiar with the history of yellow fever epidemics in the United States.

But we had hoped that it was so old and so familiar that there would be no repetition of the sad, disgraceful spectacle. For there can be no doubt that, in the present state of knowledge, such epidemics are inexcusable. Some one is responsible for them. Or, rather, the responsibility rests somewhere, but under our present system, or want of system, of sanitary administration it is often difficult to say just where.

An epidemic on our soil requires the transportation of an exotic germ to a favorable location, and, although we may not know the precise form or the specific characters of this germ, we do know that in a vast majority of the cases new infected centres are established by those who fall sick of the disease in localities more or less distant from the place where they received the morbific agent into their system.

The indications for sanitary prophylaxis are, therefore, apparent: the exclusion of the exotic germ; isolation of the sick; disinfection of excreta and of all articles which have been in contact with the sick, and of their apartments and immediate surroundings; sanitary police of infected or exposed localities. But, to accomplish the end in view, these measures must be carried out promptly and intelligently in accordance with the knowledge which has been acquired as a result of dear-bought experience in previous epidemics, and of the labors of those who have determined the value of disinfectants by scientific methods.

Has this been done in Florida? Were the proper steps taken to exclude the exotic germ in the first instance, to isolate the sick and disinfect excreta, clothing, etc., when it was known that the disease had obtained a foothold at Tampa, Plant City, and, finally, at Jacksonville? Who is responsible for the failure to stamp out the disease in the early spring, when it was well known that it had survived the winter on the soil of Florida and, with the recurrence of warm weather, was certain to become epidemic, if any reliance could be placed upon previous experience?

Wherever the disease becomes established, the well-known principle of depopulation of the infected locality should be promptly and efficiently carried out. To attempt to shut in the population of infected localities by sanitary cordons and shotgun quarantines is a practice which is generally condemned by enlightened sanitarians, and its uselessness was affirmed by the International Sanitary Conference of Rome (1885), in a proposition which was adopted with but a single dissenting voice.

THE Association of American Anatomists was organized in Washington last Monday, and the following officers were elected: *President*, Dr. Joseph Leidy, of Philadelphia. *Vice-Presidents:* Drs. Frank Baker, of Washington; F. D. Weisse, of New York. *Secretary* and *Treasurer*, Dr. A. H. P. Leuf, of Philadelphia. *Executive Committee:* Drs. Harrison Allen, of Philadelphia; Burt G. Wilder, of Ithaca, N. Y., and A. C. Bernays, of St. Louis.

The American Pediatric Society was likewise organized on the next day by the election of the following officers: *President*, Dr. A. Jacobi, of New York; *Vice-Presidents:* Drs. A. V. Meigs, of Philadelphia; F. Forcheimer, of Cincinnati. *Secretary*, Dr. W. B. Booker, of Baltimore. *Recorder*, Dr. William Perry Watson, of Jersey City. *Council:* Drs. T. L. Latimer, of Baltimore; J. M. Keating, of Philadelphia; J. N. Love, of St. Louis; J. H. Ripley, of New York; S. C. Busey, of Washington; C. P. Putnam, of Boston, and A. D. Blackadar, of Montreal. A constitution was adopted, and the meeting adjourned.

PROF. VON ESMARCH, of Kiel, who came to this country to attend the Congress of American Physicians and Surgeons, will lecture at the University of Pennsylvania this Saturday, at 11 o'clock, and at 12.30 will operate in Prof. Gross's Clinic, at the Jefferson Medical College.

M. DUJARDIN-BEAUMETZ has been sent by the French Government on a mission to Russia, to study its hospitals and methods of medical instruction, and M. Fremy to the United States to study the hospital arrangements for the treatment of tuberculosis.

AT the cemetery at Zurich there is being erected a crematory, the dedication of which will take place in the early fall. On both sides of the main apartment containing the furnace will be constructed niches for urns.

THE Accademia medico-fisica fiorentina has offered a prize of five hundred francs ($100) for the best work upon the surgery of the brain, spinal cord, and contiguous structures. The essay must be written in Italian, French or Latin.

SOCIETY PROCEEDINGS.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

First Triennial Session
Held at Washington, September 18, 19 and 20, 1888.

(Specially reported for THE MEDICAL NEWS.)

TUESDAY MORNING, SEPTEMBER 18TH.

MEETING FOR ORGANIZATION.

DR. PEPPER, of Philadelphia, the Chairman of the Executive Committee, called the Congress to order at 1 P.M. and spoke as follows:

On behalf of the Executive Committee I have the honor to announce to you, the members of the various special Associations composing the Congress of American Physicians and Surgeons, the manner in which we have discharged the responsible duty entrusted to us.

The present meeting is the result of prolonged deliberations. The development of one special society after another showed the irresistible tendency of the recent progress of medical science. The deep interest which attaches to the meetings of these separate bodies suggested naturally the thought of a conjoint meeting, which would bring together the active workers in allied fields. This thought began to take definite shape as much as four years ago, before the attention of the medical profession became occupied with the preparations for the meeting of the International Medical Congress, which occurred in this city last year. But all action was deferred, in order that there should not be even the semblance of interference with that important meeting. The delay has not been injurious. It has rendered more than ever conspicuous the actual need of an organization to secure the reunion, at stated intervals, of the more active teachers and writers and workers in the leading branches of medical science. Such reunions must be at a locality to which it will be possible to draw such men from all quarters.

In order to produce the best scientific results, it is essential that the members in attendance shall be reasonably limited, and that, as far as possible, the same men shall attend successive meetings. A continuity of intellectual life and activity is thus secured, which increases greatly the benefits derived from these meetings. A large proportion of those interested in the development of such an organization are, as I am myself, warmly attached to the American Medical Association, and determined to exert their influence to maintain and promote the success of this great national organization. All are no less warmly interested in the prosperity of the various special societies to which they severally belong. Your Executive Committee found little difficulty, however, in deciding upon a plan which would avoid even the least interference with the American Medical Association, while, at the same time, it avoided any encroachment upon the independence and autonomy of the special Societies. It is unnecessary to dwell upon the special points which have been embodied in the by-laws which will be immediately submitted to you.

Your committee ventures to hope that these provisions, which are strictly in accord with the terms of the resolutions under which they were appointed, will meet the unanimous approval of the Congress. We have recommended that the sessions shall be triennial, thus leaving to each participating body two intervening independent meetings, at such time and place as may be chosen. We have jealously guarded against the admission of any parliamentary business into the work of the Congress, the functions of which are designed to be absolutely and exclusively scientific. Thus, and thus only, can the sessions of this body be lifted up into and maintained in that high and cool air of learned discourse which best permits the diffusion of truth and the promotion of science. We have no less jealously guarded the independent sovereignty of each participating society. To all their full rights are preserved; to all equal privileges are accorded; upon all the burden of expense, which should always be but a light one, has been laid in equitable distribution. The successive meetings of the Congress will be held in this beautiful city, which every year becomes more accessible, more attractive, and more precious to every citizen of the republic. Nor could we fail to make acknowledgment of the great material advantages we shall enjoy in these meetings here, through the liberal and enlightened policy which places freely at our disposal the admirable facilities of the Medical Department of the Government.

Here, too, your Executive Committee would gladly acknowledge, we have found colleagues in the members of the Committee of Arrangements, to whom, and especially to whose chairman, Dr. S. C. Busey, we desire to return cordial thanks for a zealous and harmonious cooperation which has contributed in very large proportion to the successful inauguration of this new organization.

And lastly, your Executive Committee would report that in the discharge of one of the most important of our duties we have reached the conclusion that the selection of the president of each Congress shall be entrusted to the Executive Committee then in office. Thus will the choice of the most worthy and most representative men of the whole country be insured at the hands of a truly representative body, specially selected by their various societies for their ability and judgment.

The powers you are asked to confide to future executive committees are large, but they will be reposed in safe hands. Each society participating will be stimulated to continuous and lofty effort. Membership in any of these bodies will come to be regarded as more and more an honor, and in time the scientific qualifications of candidates will be more and more strictly scrutinized. Can there be any doubt that if the spirit which has led to the formation of this Congress be maintained and cherished, this new organization will exert a powerful and beneficent influence on the future of medical science?

It remains then only to add that in exerting the privilege of selecting a president for this first Congress of American Physicians and Surgeons, your Executive Committee feel they have been guided to the choice of a man whose admirable personal character, whose high attainments, and whose illustrious services in the cause of literature, of science, and of the entire medical profession, mark him as entitled to this great honor and distinction. It gives me, therefore, the utmost gratification to present to you our president, Dr. John Shaw Billings, and to announce that the Congress of American Physicians and Surgeons is now duly organized.

DR. BILLINGS then came forward, and in a few words expressed his appreciation of the honor which had been

conferred upon him in his selection for the important position of President of the Congress.

He then read a cablegram of greeting to the Congress just received from Sir Henry Acland, the late president of the Medical Council of Great Britain.

The President then introduced DR. S. C. BUSEY, the Chairman of the Committee of Arrangements, who made an

ADDRESS OF WELCOME.

He welcomed the Congress in behalf of the Committee of Arrangements and of the profession and citizens of Washington. The circumstance of the simultaneous assemblage here to-day of the special medical societies of this country, he said, marked an epoch in the history of the American medical profession. The gratification felt in welcoming them was enhanced, he said, by the presence of the distinguished men from other countries who have come to honor and encourage them.

DR. PEPPER, from the Executive Committee, submitted the following

BY-LAWS,

which were adopted.

1. This organization shall be known as "The Congress of American Physicians and Surgeons."

2. It shall be composed of national Associations for the promotion of medical and allied sciences.

3. It shall hold its sessions triennially in the city of Washington, D. C.

4. The officers of the Congress shall be a President, Vice-President, Secretary, Treasurer, and an Executive Committee.

5. The President shall be elected by the Executive Committee, of which he shall be *ex-officio* a member.

6. The Presidents of the participating societies shall be *ex-officio* the Vice-Presidents of the Congress.

7. The Secretary and Treasurer shall be elected by the Executive Committee. They shall be *ex-officio* members of the Executive Committee.

8. The Executive Committee shall be composed of one member from each participating society, and said members shall be elected by the various societies at the next annual meetings subsequent to the Congress.

It shall be charged with all duties pertaining to the organization of and preparation for the ensuing Congress, including the election of all officers and of a Committee of Arrangements.

It shall superintend the publication of the transactions of the Congress.

9. The expenses of the Congress shall be divided between the participating societies in proportion to their membership.

10. The admission of new Associations to participation in the Congress shall be by unanimous vote of the Executive Committee.

EVENING SESSION.

DR. REGINALD H. FITZ, of Boston, opened the discussion on

INTESTINAL OBSTRUCTION IN ITS MEDICAL AND SURGICAL RELATIONS.

He confined himself to the diagnosis and medical treatment of acute, internal, mechanical varieties of intestinal obstruction. The only causes recognized were strangulation from adhesions, vitelline remains, peritoneal slits, pockets and rings; intussusception, knots and twists; abnormal contents; strictures and tumors. The evidence presented resulted from the analysis of 295 cases collected from medical literature since 1880.

The most constant symptoms of obstruction proved to be pain, vomiting, tympany, and tumor. Stoppage of the bowels was not regarded as the most essential symptom in diagnosis, since frequent, loose stools characterize intussusception and may occur in other varieties of obstruction. Too much attention directed to this symptom leads to erroneous diagnosis, since it is of frequent occurrence in peritonitis, and often results in irrational and injurious treatment.

The physician is called upon to decide whether the given case is one of acute obstruction; then, where its seat and what its cause; and, finally, what is to be done. The evidence showed that the diagnosis is to be made by excluding the various causes of peritonitis. Its seat in the large or small intestine is to be determined by injection, under high pressure, when necessary. The variety is, for most practical purposes, an intussusceptum or a twist of the large intestine, and strangulation or gall-stones of the small intestine. The differential diagnosis depends upon the relative frequency of these varieties, the age of the patient, the antecedent and immediate symptoms. The treatment consists in the attempt to relieve intussusception of the large intestine by forced injections, under anæsthesia and with massage, and to treat obstructing gall-stones by opium, possibly with the aid of laxatives and electricity. All the other varieties of acute obstruction require surgical treatment. The latter is also necessary, on or before the third day, in cases of intussusception not yielding to forced injection, and in gall-stones when the symptoms become urgent.

DR. SENN, of Milwaukee said: The operative treatment of intestinal obstruction is in its infancy. Since laparotomy for other indications has become an established and frequently practised procedure, a number of the bolder and more aggressive surgeons have resorted to direct measures for the relief of intestinal obstruction, but, like all serious operations for otherwise incurable and fatal affections, its general application has met with strong opposition, not only by the laity, but also by the profession. The appalling mortality which has attended the operation in the hands of even the most competent surgeons has been quoted in the discussions on this subject in medical societies as a sufficiently strong argument in favor of non-operative interference. In this regard, the history of laparotomy for intestinal obstruction is only a repetition of the history of ovariotomy.

The mortality of laparotomy for acute intestinal obstruction will be reduced to that of other intraperitoneal operations, and surgeons will recognize the importance of operating early before the patient's strength has been wasted by the disease, and before the parts involved in the operation have undergone irreparable textural changes. The mortality of abdominal section in the treatment of the different forms of intestinal obstruction will always be great because the conditions which have caused the obstruction are often an intrinsic source of danger. In others the removal of the obstruction necessitates an intestinal resection, which in itself is a vastly more serious operation than the removal of an ovarian tumor.

Intestinal obstruction, irrespective of its cause, is always followed by a series of consecutive pathological changes which, independently of the partial or complete interruption of the passage of intestinal contents, tend to destroy life. The dilatation of the intestinal tube on the proximal side of the seat of obstruction may give rise to such a degree of abdominal distention as to destroy life from suspension of important functions by mechanical pressure. In acute obstruction, violent peristalsis on the proximal side of the occlusion causes an increased afflux of blood to the portion of bowel the seat of exaggerated physiological function; which, after cessation of peristaltic action, remains as an intense venous and capillary engorgement. During the paretic stage the bloodvessels in the intestinal wall have lost their support, hence transudation and exudation readily take place into the paravascular tissues, which, combined with the capillary stasis attending this stage of the inflammatory process, results in gangrene. The intestinal wall, in a state of inflammation, becomes permeable to pathological microörganisms which are always present in the intestinal canal, and which, after passing through the entire thickness of its walls, enter the peritoneal cavity and induce septic peritonitis—a frequent immediate cause of death. These facts are cogent reasons for adapting surgical measures in all cases of intestinal obstruction due to mechanical causes as soon as a diagnosis can be made. If this were done, the two greatest sources of immediate danger attending and following laparotomy, shock and septic peritonitis, if not entirely avoided, at least would be less likely to occur, and the tissues the seat of operation would be in a favorable condition for direct treatment and repair.

An abdominal section in the treatment of intestinal obstruction is always necessarily attended by some shock, and it is, therefore, of the utmost importance to perform the operation at a time when the organs of circulation and the nervons system are still in a condition to resist successfully the immediate effects of the operation. Death from septic causes can only be avoided by operating at a time when the intestinal canal, at the seat of obstruction and on its proximal side, is still in a condition capable of resisting infection, and of undergoing a satisfactory process of repair, in case it becomes necessary to incise or resect during the operation. The statistics of operation for intestinal obstruction will improve as soon as we shall be able by improved methods of diagnosis to make an early positive diagnosis, and will adopt in the treatment positive surgical measures before the prospects of a recovery have been rendered improbable, if not impossible, by days and weeks of useless, and more than useless, medication. True intestinal obstruction, whatever its cause may be, is as strictly a surgical affection as strangulated hernia, and remediable only by the same kind of surgical treatment. Physicians should recognize this fact, and should call into counsel a surgeon as soon as a probable diagnosis of intestinal obstruction can be made. To let a patient die of the consequences of a removable cause of obstruction, without an operation, is a reflection upon modern surgery. The difficulties which surround the diagnosis, and the present imperfect technique of the operative procedures in cases of intestinal obstruction, are not only responsible for the heretofore late operations, but also, to a great extent, for the many failures. Ways and means for more accurate diagnosis will have to be devised by more careful clinical observations and by experimental research, while new and improved methods of operation must be devised and their merits safely tested by experiments on animals.

Insufflation of hydrogen gas is a valuable means of diagnosis in locating the seat of obstruction before tympanites has set in, and, therefore, best adapted at a time when most needed—during the early stage of intestinal obstruction. If the colon dilates uniformly from the sigmoid flexure of the cæcum, the obstruction must be sought for higher up in the intestinal canal. The passage of gas through the ileo-cæcal valve rendered incompetent by the distention of the cæcum is always attended by a characteristic gurgling or blowing sound, which is always heard most distinctly by applying the ear or stethoscope over the ileo-cæcal region. Not infrequently the sounds are so loud and distinct that they can be heard at a distance of several feet.

If the gas passes the ilio-cæcal valve under a pressure not in excess of that required to overcome it in a state of health, and if, after inflation, a thorough examination of the ileo-cæcal region by inspection, palpation, and percussion reveals nothing abnormal, the search for the obstruction is continued by inflating the small intestine slowly and making frequent examinations of the abdomen to ascertain the height to which inflation has been made and to study the relative positions of the different abdominal organs. Inflation is also a useful diagnostic resource in locating the obstruction during laparotomy for intestinal obstruction. The intestine below the seat of obstruction is always empty, collapsed, and anæmic as compared with the portion above the obstruction.

When the obstruction is located high up in the intestinal canal and the tympanites is extensive, the empty portion of the small intestine has by compression become displaced, and is often not readily found. In such cases the distention of the bowel from below will indicate to the surgeon at once the location and length of the intestine below the seat of obstruction from below upward. The manipulation of the healthy intact portion of the intestinal canal in search for the obstruction is by far a less hazardous procedure than the handling of the distended portion above the obstruction rendered paretic, exceedingly vascular, and much softened by obstruction.

In cases in which we suspect the presence of a perforation, inflation with hydrogen gas will demonstrate not only its existence, but also its location. Invagination is rare above the ileo-cæcal valve, and location can be determined by inflation with hydrogen gas, and if resorted to early it may prove the means of effecting the mechanical reduction. In ileo-cæcal and colonic invagination slow and persistent distention of the colon with hydrogen gas, with the patient completely under the influence of chloroform, is the safest and most efficient means of effecting reduction, and should always be resorted to whenever these conditions are recognized or even suspected.

MR. DURHAM, of London, desired to express the extreme pleasure he felt in coming here among his American *confrères* and at the hospitable reception he had received at their hands. The subject of intestinal obstruction is one in which he had taken the greatest possible interest. It was possible some of those present might have come across a book entitled *Quain's Dictionary of Medicine*, and if they would look over that book they would

find that the article on intestinal obstruction was written by him. He takes a deep interest in these cases, inasmuch as the life and health, the comfort and prosperity of the patient depend upon a rightful action on the physician's part. Truly he may say there is no class of cases more dangerous, more serious, more urgently calling for surgical treatment than those cases of intestinal obstruction. He agreed with Dr. Senn in one thing, and that is, that the sooner the physician calls in the surgeon the better it is for the patient. He agreed with Dr. Senn, that surgical operation should be performed as soon as the diagnosis is made, but he did not know any class of cases in which the diagnosis is so difficult as in this class of cases. He went further than Dr. Senn and said that cases do occur, from time to time, in which the surgeon is justified in operating before he had made a diagnosis, in order to enable him to make one.

In regard to this question of diagnosis, he said, tha,t if his hearers would recall his article in Quain's *Dictionary*, they would recollect that he had collected several thousand cases. What we should be guided by is not the statistical probabilities but the actual indications of the particular case before us. Every case must be studied and judged upon its own merits and treated according to the indications that present. The chances may be 999 to 1000 in favor of one man and 1 to 1000 in favor of another.

In regard to the treatment of intestinal obstruction, he would say the first thing to do, is to determine the seat of the obstruction. In cases of acute intestinal obstruction, or where there is reason to believe that the obstruction exists in the small intestine, then he believes the proper course of treatment to pursue is to open the abdomen and search for the cause and relieve it as best we can. On the other hand, when the indications are that the obstruction is in the large rather than in the small intestine, there is not the same degree of urgency in a very large proportion of cases. Of course, the procedure to be adopted must depend upon the fact as to the seat and the cause of the obstruction, and here he ventured, with the greatest hesitation, to take issue with Dr. Senn on this point. Dr. Senn said that lumbar colotomy is obsolete. As a matter of fact, it is not obsolete. It is an operation that is performed on the other side of the Atlantic day after day, and will never become obsolete if he can help it. He knew of no operation in surgery, except the simple one of tracheotomy, that affords so much relief and prolongs the patient's life as this. He said that if he himself were the subject of cancer of the rectum, he should most certainly have lumbar colotomy performed.

DR. WM. ORD, of London, said that he supposed he was called upon as a physician to express the general inadequacy on the part of that branch of the profession to deal with the subject of intestinal obstruction. The function of the physician appeared to him, as has been said before, to come in very early in the case. He must admit that the question of diagnosis is a matter of very great difficulty, where in the case of physiological obstruction there is an absence of indication of local pain or a fever or anything like a bloody discharge from the bowel. Perhaps he may be thought to be a little cowardly, under such circumstances, if he should be inclined to adopt the views of the first speaker rather than of the second, and claim a little time. Sir Wm. MacCormack would, he thought, bear him out in some of his remarks. In a good many of these cases he has operated with the greatest care, but the operation has been performed too late. But in cases in which things seemed most favorable in regard to time, and in which the operation was done with the greatest care and most perfect surgical completeness, it has been as satisfactory in its results as one might have hoped.

MR. THOMAS ANNANDALE, of Edinburgh, said that he had two good reasons for not speaking; first, he had arrived but half an hour ago from the steamer, and second, that unfortunately he had not, owing to that, been able to hear the papers or much of the discussion. As he had been called upon to speak, he might be permitted to give his opinion in regard to the treatment of intestinal obstruction. Now, in regard to treatment, he thought it was very important to divide these cases into acute and chronic. In regard to the acute cases, it is perfectly right that everything medicine can do should be tried, but should not be tried too long. As soon as it has been tried for forty-eight hours then the case belongs to the surgeon, and the sooner he opens the abdomen the better. If possible, open the intestine and form an artificial anus.

In regard to chronic cases he thinks one might wait in fact until the symptoms have become acute, and then if the symptoms of a chronic intestinal obstruction become acute, then he should operate at once. He had heard his friend, Mr. Durham, speak of lumbar colotomy in cases of cancer of the rectum. He has learned to prefer inguinal colotomy in the left inguinal region, because it is not a serious operation in the matter of risk, if properly done, and is certainly a simple one in a large majority of cases.

DR. SENN, in closing, said that he could assure Mr. Durham that hydrogen when injected into the intestinal canal never forms an explosive, as the canal naturally contains hydrogen gas. It has been tried hundreds of times on animals and at the bedside without an explosion. One of the first experiments he made was on himself.

In reference to colotomy, he would say that he did not mean to condemn this operation. He advocated its use in several cases, but he did repeat the statement that lumbar colotomy might become obsolete. The operation is done for the purpose of securing to the bowel perfect physiological rest, which cannot be done by a lumbar colotomy.

WEDNESDAY EVENING, SEPTEMBER 19TH.

DR. CHARLES K. MILLS, of Philadelphia, opened the discussion on

CEREBRAL LOCALIZATION IN ITS PRACTICAL RELATIONS.

He began by referring to the fact that from the clinical observation of practical physicians sprang the conceptions out of which developed the science and art of cerebral localization. Allusion was made to the discoveries of Bouillaud and of Broca on speech localization; to the announcement by J. Hughlings Jackson in 1864, that certain convolutions superintended the delicate movements of the hand which were under the immediate control of the mind, and to Hitzig's researches having originated from his observing certain ocular movements during galvanization of the heads of his patients. Brief reference was made to the history of American work in

localization; to the investigation in 1874 of the New York Society of Neurology and Electrology; to Putnam's discovery that irritation of the white matter beneath the definite cortical centres produced movements similar to those caused by irritation of the centres themselves; to the labors of Wood and Ott on the heat centres, and to the light thrown by these investigations upon the mechanism of fever, and the action of drugs upon different forms of high temperature.

Before taking up the surgical aspects of the question, he briefly discussed some of the practical results wrought by cerebral localization for psychological medicine and medical jurisprudence; for general symptomatology and diagnosis, and for medical therapeutics and technique.

Trephining for cases of insanity, particularly when guided by the rules of localization, was briefly considered. Two of the recent cases of brain operation, reported by Bennett and Gould and by Macewen, were cited as possibly opening a new field for surgical interference in insanity, the excision of cortical areas as a method of treatment when certain subjective phenomena, such as hallucinations of sight or hearing, can be given a local habitation in the brain.

In turning to the surgical aspect of cerebral localization in its practical relations, Dr. Mills stated that his remarks would be chiefly concerned with questions of diagnosis. He considered, first, the forms of disease and injury in which cerebral localization is a valuable aid to diagnosis; and, secondly, the topographical diagnosis of the parts of the brain accessible to surgical interference, with some sources of error in such diagnosis. The forms of disease in which such diagnosis has been used are intracranial tumors, cysts, fractures, hemorrhages, abscesses, and discharging cortical areas.

In considering the localization of brain tumors, Dr. Mills referred to twenty cases of autopsies occurring in his own personal experience, in about one-half of which the tumors were in surgically accessible areas, and in at least one-fourth of which successful operations might have been performed. He advocated, from experience, the excision of old gummata, and also, in special cases, of tubercular growths. The value of localization was shown in cases of fracture in which the extent of the unseen damage could not be told by the position and character of the visible lesions.

Of the different forms of intra-cranial hemorrhages, subdural, cortical and intra-cerebral, were most amenable to localizing diagnosis. The rules for the local diagnosis of these forms of hemorrhage were then given. Dr. Mills advocated the performance of trephining in exceptional cases of hemorrhage into the ganglia and capsules—cases in which symptoms indicated that the bleeding had not broken into and inundated the ventricles. From his dissections, the best site for operation in such cases, all things considered, would be in the anterior portion of the first or second temporal gyre. He favored Hughlings Jackson's suggestion of excising localized cortical areas, even when coarse lesions could not be made out, in cases of spasm, beginning locally and deliberately.

The inaccessible areas had been narrowed down by the venturesome surgical explorer until reduced to the middle regions of the base and its bordering convolutions, the corpora quadrigemina and the pons-oblongata.

The characteristics of localizing symptoms were described as phenomena of irritation, destruction, instability, pressure, invasion, and reflex action. Signal symptoms and the serial order of motor phenomena were discussed. Briefly, in certain regions of the brain an accurate topographical diagnosis could be made with great certainty from positive localizing symptoms. These brain areas include the entire motor zone, in which are embraced the motor or emissive speech area—the region of Broca; the visual area in the cuneus, giving lateral hemianopsia, and the intracerebral visual tracts, possibly also the angular gyre, and the lateral surface of the occipital lobe. In other regions of the encephalon the topographical diagnosis could be made with sufficient accuracy, even for surgical purposes, by the study of the positive symptoms, with, in addition, the application of processes of exclusion and successive differentiation. Particular stress was here laid upon the importance of pressure and invasion symptoms. These areas for approximately certain topographical diagnosis include the cerebellum, the prefrontal lobe, the temporal lobe and even certain cranial nerve districts, as the auditory and facial, when the lesion would be localized within the cranium between the superficial origin of the nerves and their entrance into their foramina or canals of exit.

Motor localization has become almost an exact science The latest physiological research bearing upon the subdivision of the motor area and the light thrown upon the question by surgical operations were discussed. It was held to be imperative for the neurologist and surgeon to have exact knowledge, not only of the anterior and the posterior limits, but also of horizontal subdivisions of the motor zone.

The old method of subdividing the motor zone into three elliptical or circular areas from above downward was considered insufficient, but the neurologist should be able to locate for the surgeon from a study of motor phenomena at least seven or eight positions for trephining, these positions being selected by a close study of the initial or signal symptoms, the serial order of movements, and also of the amount and character of the temporary paralysis after the seizure and the method of extension of the persisting palsy. Reference was made to operations performed through accurate localization in these areas.

The view of Ferrier as to the localization of the centre for ocular and head movements in the second frontal gyrus was concurred in, and observations were cited in its support; when turning of the head and eyes was the starting-point of the spasm, this localization was sometimes indicated. The fact that cortical oculo-motor palsies were not present as a persistent condition, even with definite lesions of the second frontal gyre, was explained by the intimate and peculiar connections of the oculo-motor nuclei at the base; they do not persist for the same reason that paralysis in the upper distribution of the facial nerve is so seldom permanent. He believed that there was a special centre for the orbicularis palpebrarum movements, probably below and adjacent to the oculo-motor centre.

Dwelling upon the sources of error in motor localization, the questions of reflex spasm, of unilateral convulsions due to uræmia, lead, and other toxic agents, and hysteria and hystero-epilepsy were briefly discussed. Sufficient diagnostic difficulties are still present to make it important, in the light of the tremendous impetus toward operation, to examine carefully all questions of

differential diagnosis. In certain spasmodic affections, the resemblance between those clearly of reflex origin and those as demonstrably central, was very striking. Trigeminal epilepsy, whether dural, facial, dental, nasal, pharyngeal, laryngeal, or of whatever local origin, might cause unilateral convulsions or even mono-spasm. Dural epilepsies are especially worthy of attention, as shown by the researches of Dupuy, Brown-Sequard, Burdon Sanderson, the New York Society of Neurology and Electrology, Duret, Bochefontaine and Francois-Franck. Franck has made a careful comparison and contrast of cortical epilepsies with those which are reflex and toxic, including those which are due to irritative lesions of the dura mater.

He then referred to five cases in his own experience in which operations had been performed for epilepsies apparently reflex in character; two in which spicules of bone had been removed from the dura mater, one in which an old inflammatory lesion of the membranes and cortex from traumatism was present, and two in which scalp cicatrices were removed. While fearing with Franck, that we were not always able to make a trenchant separation between reflex and cortical epilepsies, some points of separation were indicated.

True Jacksonian epilepsy, Dr. Mills believed, was sometimes reflex in origin, that is, that it was established by intense, persistent peripheral irritation, and even after the irritation had been removed, the cortical discharge continued; herein, perhaps, lay the explanation of Jacksonian spasm without coarse lesion, and herein also, perhaps, was to be found the justification for the excision of cortical discharging areas. He referred to a case in which epilepsy, clearly of Jacksonian type, was just as clearly due to a fibroma involving a nerve trunk on the palmar surface of the hand, and in which the patient was cured by removal of the growth.

With reference to sensorial localization, cutaneous and muscular, the views of Horsley and Schäfer with reference to the limbic lobe were accepted in part. He believed that the evidence is becoming stronger every day in favor of the existence of a zone for the sensations of touch, pain, and temperature separate from cortical motor areas. Collections of cases, such as those of Starr, Petrina, and others, which were supposed to indicate that the sensory areas coincide largely with those of motion, were not regarded as overcoming the positive evidence of decided destructive lesions of the cortical motor zone without any sensory disturbance. From a study of his personal cases, he had concluded that they did not support the doctrine that the motor and sensory areas coincide. Notes of these cases were given and also cases from other reporters. He believed with Bechterew that the loss of sensation in animals which have had the motor area destroyed was apparent and not real. Some light had been thrown upon this disputed question by careful examination of patients after operation, particularly when certain definite cortical areas had been clearly excised. Reference was made to the cases of Horsley, Weir and Seguin, Lloyd and Deaver, and others. The speaker believed that these observations and experiments pointed clearly to the theory that the motor zones are motor alone in function. His view was that the region for general sensation including touch, pain, temperature and perhaps pressure, location and muscular sense could be divided into special areas for the various distinct portions of the body and that these centres lay alongside and had close anatomical and morphological relations with corresponding motor centres, but that they were not identical with them. He located these sensory areas in the gyrus fornicatus, the hippocampal gyre, the precuneus, and the lateral posteroparietal region.

The practical conclusion was that the neurologist and surgeon must depend upon motor symptoms alone in fixing the site for operation in cases in which the motor lesions are definite. When positive sensory symptoms are present, they may sometimes serve to aid in locating more exactly the position for operation, but the data are not sufficient for positive reliance.

The question of morphological peculiarities of the human brain was briefly alluded to as having some practical bearing upon the subject under discussion. The position of the so-called angular gyre and aberrations in the parieto-occipital region were more particularly discussed. Even the fissure of Sylvius, the central and the parieto-occipital fissures sometimes present considerable variation, but, as a rule, such aberrations are not confusing in operating on the motor region after the method of Broca, Thane, and others.

Dr. Mills concluded by saying that the discoveries in cerebral localization with the achievements in antiseptic surgery constitute the greatest triumphs which adorn the history of the noble science and art of medicine.

DR. ROSWELL PARK, of Buffalo, spoke as to the surgical aspect of the subject, and omitted consideration of those cases in which operation is dictated by a study of the subjective rather than of the objective features.

Cerebral topographical anatomy. The areas which most concern the surgeon are those which cluster around the fissure of Rolando. A few bony prominences deserve attention in this connection—that at the point of the nose known as the glabella, the external occipital protuberance, known also as the union; the point of the vertex half way between these two—the bregma; the external angle of the orbit, the tip of the mastoid process and the lower border of the alveolar process of the upper jaw. The fissure of Rolando has its upper end about five centimetres back of the bregma, but does not run quite in the middle line, its lower end lies about one-half centimetre behind the auriculo-bregmatic line and a little above an imaginary line projected backward from the superciliary ridge, thus the lower end of this fissure will be found about six centimetres above and a little behind the external auditory canal; or about an inch behind the bifurcation of the fissure of Sylvius. In regard to the convolutions, it must be stated that lesions of the dura mater overlying motor areas are not always to be distinguished from lesions in the cortex beneath. It is enough for the surgeon that a lesion of some kind can be located with reasonable accuracy. It matters not whether this is an old, irritative lesion; an acute suppurative process between the bone and the brain, or an abscess or tumor of the brain itself. The indication for exploration is just as strong in either case.

When and where can one trephine with safety? The safest rule is first to apply the trephine over those areas which do not overlie large vascular channels. Afterward the opening may be extended in any direction and to any required extent. The greatest hesitation is with regard to opening one of the sinuses. Two dangers

attend such an accident, one fatal air embolism, the other profuse hemorrhage. The former danger is almost a theoretical one, and the other may be overcome by plugging the sinus, or closing its wound with a fine needle and suture.

Cerebral and cerebellar abscess. Bergmann has shown that abscess of the brain has but one result—death—and that the surgeon's knife offers the only relief. So far as we know, there is no such thing as idiopathic abscess of the brain; it is always the result of some external wound of the head or some extension from diseased surrounding bone. The only exceptions to this statement are to be found in the case of pyæmic or tuberculous abscess. The symptoms of deep brain abscess may be divided into three groups according to causes: 1. Those which are inseparable from indications of suppuration. Such are those disturbances which may follow any deep-seated foreign body. 2. Symptoms of increased intra-cranial pressure and of disturbed relations. 3. Special symptoms by which the locality of the disturbance may be ascertained. As long as the gray matter is undestroyed, the collection of pus may assume large dimensions, and still no intense motor symptoms appear. Local elevation of temperature over the abscess is a symptom of importance when present, but its absence need not negative a diagnosis, if made on other grounds. Wernicke has stated that there is a peculiar disturbance of speech which points to lesion of the temporal region. This is the confusion of correct with incorrect words. In the general diagnosis of cerebral abscess, it is to be remembered that there usually is a latent period which may continue for an indefinite period. The stage of active symptoms is usually ushered in by more or less headache; slight rise in temperature; local or motor symptoms can only be expected when the abscess is in the motor area of the brain.

In operating for abscess of the brain, operators, until recently, have satisfied themselves with incising the dura and doing nothing more. With the introduction of aspirating methods, the hollow needle came to be used for brain exploration. The dangers of this procedure are certainly small. The danger of hemorrhage has been over-estimated. A temporary tampon will control deep hemorrhage, while, in bleeding from the pia mater, the vessels may be secured with ligatures or serre-fines. In brain abscess consequent upon middle ear disease the best point to trephine, according to Bergmann, is above and behind the ear. Macewen proposes a second counter-opening on a level with the floor of the abscess.

Brain tumors. The principal features of these growths which produce symptoms are location, size, character, rapidity and manner of growth, and extent to which they affect surrounding brain tissue. Considered in their surgical relations, we may, with Bergmann, divide them into (*a*) the circumscribed or encapsulated, and (*b*) the infiltrated or diffuse, around which, as a rule, there is a zone of softening. A third class may be mentioned, *i. e.*, those growing from the interior of the cranium, from the bone or dura.

If a reasonably satisfactory diagnosis can be made, it must be, indeed, an extensive growth of the cranial vault which shall contraindicate operation. The question of what and how many brain tumors are operable has been best answered by White. He found in one hundred brain tumors met with in the dead room of Guy's Hospital that only nine could have been removed—one tuberculous nodule, four sarcomas, two undetermined tumors, one cyst, and one myxoma. Nine per cent. could have been attacked, providing a fairly accurate diagnosis had been made. Of these nine tumors, five were located in the cerebellum, one in the frontal lobe, and one in the extremity of the occipital. It is doubtful whether these seven could have been recognized accurately enough during life to justify operation; while the myxoma was impossible to diagnosticate. It is thus seen that by no means all tumors which can be diagnosticated can be deemed suitable for operation.

Operation for intracranial tumors. The head should be shaved two or three days before operation, washed with green soap and ether, and antiseptic compressors applied. Chloroform should be, as a rule, the anæsthetic, on account of its contracting influence on the vessels of the brain. Morphia, hypodermatically, and ergot may be resorted to for the same purpose. The author suggested that, after localizing the lesion, a small, disinfected headless tack be driven through the scalp into the bone at the point determined upon. After the dissection of the external flap this will point out accurately the point to be first attacked. In order to prevent hemorrhage the author had found a spray of antipyrin solution (1 : 40) of service. The semilunar flap is the proper shaped one to raise. Its apex should be in such a position as to allow of drainage with the patient on his back. The periosteum should preferably be raised with the flap. The use of the trephine is preferable to the hammer and chisel. Since Macewen has taught us how to preserve the fragments of bone and restore them to their place, his method has been widely tried and universally commended. The dura mater should be incised around a large part of the area at a distance of one-eighth to one-quarter of an inch from the edge of the bone. The appearance of the dura is sometimes a guide to trouble beneath. In recent cases it is sometimes highly vascular; in old cases it may be yellowish or discolored. Whenever adherent it should be freely excised. Horsley claims that marked protrusion of the dura indicates pathological intra-cranial tension. The color of the brain should be noted, remembering that the cerebellum has normally a different appearance from the cerebrum. Sometimes, where there is uncertainty as to which convolution is the desired one, the battery may be employed. When no indication of lesion is found, further exploration may be conducted with a small aspirating needle or a blunt probe.

Should a tumor be discovered, the incisions for its removal shonld be made perpendicularly to the cortex for the purpose of avoiding hemorrhage and division of the conducting fibres. Removal of a layer of cortex, whether normal or abnormal, does not leave, as one might fear, a prominent gap with vertical sides, since, in a short time, the depressed portion is made to bulge almost to the level of the intact parts surrounding. In addition the cut edges are also slightly everted, and, if less brain is removed than bone, the edges are extruded into the opening in the skull; thus there is a continual normal tendency to hernia. Bergmann and others have shown that this tendency to hernia cerebri is in inverse ratio to the area of bone removed. Experience has taught that it is wise to remove brain tissue to an extent greater than was at first considered justifiable. In all operations

or epilepsy the portions of cortex nearest the evident lesion should be freely removed.

The matter of drainage must be determined according to the circumstances of the case. An abscess must be drained as long as pus is discharged. After the antiseptic removal of a tumor, the cavity should seldom be drained for more than twenty-four hours. The provision for drainage may be removed on the second day, and the wound dressed with reasonable pressure over the flap. Exudation naturally collecting in this cavity will be retained and will give rise to some pain and disturbance, but so long as the symptoms from this are not severe, the wound may be left with confidence that the fluid will be reabsorbed, and that the pressure will be the best check to protrusion.

Dangers of the operation. The principal immediate dangers are two: hemorrhage and œdema. Hemorrhage from the pia or from the brain substance is usually readily controlled, but disastrous hemorrhage may occur from unexpected sources. When there is bleeding, a temporary tampon of iodoform gauze may be applied. The dural and skin flaps are laid over this, and an absorbent dressing applied. At the end of forty-eight hours this may be removed and sutures inserted.

The second danger, that of acute brain œdema, may be brought about either by increase of intra-arterial pressure or by obstruction of the venous channels of escape. Under this accumulation the brain becomes more sodden. Removal of a portion of the cranium is virtually a diminution of the pressure normally exercised on its contents and is often followed by reaction with production of excess of fluid.

He had collected reports of 63 cases which were presented in summary and tabular form, 17 of these terminated fatally, although only 5 of these deaths could properly be attributed to the operation; 15 of the cases were abscesses, subdural or subcortical. In 11 cases the lesion was a tumor, exclusive of tubercular nodules. Of cysts, properly speaking, there were 12. The 25 other cases were of a miscellaneous nature. In 3 cases, the true character of the lesion was not revealed during the operation, and was only discovered at the autopsy. In 2 cases, in which no palpable or visible lesion was discovered at the time of operating, the symptoms which led to the performance of the operation were nevertheless relieved, though nothing but careful exploration was practised.

Of the 63 operations, 17 were performed by American surgeons. Those who have themselves operated more than once are, with the number of their operations: Macewen, 12; Horsley, 11; Bergmann, 4; Weir, 3; Keen, 3; and Park, 3.

DR. D. FERRIER, of London, said he had listened in common with every one else in the room with the very greatest pleasure and profit to the extremely able papers which have been read before the Congress, and in which were so clearly expounded the principles of cerebral localization and of the surgical treatment of cerebral disease. He took especial personal pride in the fact that the question of cerebral localization and its practical application had been assigned a very important place in this gathering of the profession of America. It had been for many years a cherished idea with him, long before it had taken any definite shape or crystallization, that the accurate determination of the functions of the brain would in time lead to the successful treatment, by surgical means, of the most distressing ailments to which our fellow creatures are subject. Regarding the results of his experiments upon monkeys and other animals, he sounded several of his surgical colleagues with a view to obtain from them assistance in cases which he thought might be the subject of successful surgical procedure, but received little encouragement from them. He was told that men were not monkeys, though they may be descended from them.

About five years ago, at a meeting of the Medico-Chirurgical Society of London, he ventured more boldly to advocate the surgical treatment of cerebral disease, but he was honored with a denunciatory leading article in the *Lancet*, and thought this was so curious that he took note of it at the time.

If one bears in mind the brilliant results of Macewen, Horsley, Keen, Weir and others, he thought he would see that cerebral surgery has amply vindicated itself as a justifiable branch of the art of surgery. When we consider the numerous cases of tumor that have been successfully removed, of abscesses evacuated, of epilepsy permanently cured by surgical procedure and in cases which have been clearly indicated from the localizing symptoms alone, then he thought one would say there is likely to be a great future before the cerebral surgery of to-day. He thought, however, we must be cautious, because in our newborn enthusiasm we may be apt to do things our better judgment and larger experience may not consider justifiable. He did not think the dangers of cerebral surgery to be altogether due to septic inflammation. There have been cases which have not been successful. He has seen several of these that have occurred in his own practice. That, however, is not more than is true of any great surgical operation.

He thought that the cases of recovery are distinctly much larger in proportion than those in which evil results have followed. He confessed that in some respects he had been disappointed in regard to some of the cases. He alluded more particularly to those cases which Dr. Mills referred to as being the subjects of Jacksonian epilepsy. In these cases we have reason to believe there has been an irritative lesion directly localized in a definite portion of the brain. Cases of this kind have been operated upon, the discharging lesion has been removed, and certain cases have been permanently cured. Nevertheless, from the fact that some have recovered, he thought it would be well to give the patient at least the benefit of the doubt. In endeavoring to cure our patient we may also inflict a greater evil, and he, himself, shared very largely Mr. Macewen's opinion that to render a patient hemiplegic would be a very questionable cure for unilateral convulsions.

There is still a good deal of work to be done, both in regard to determine the function of the brain and also in determining the accurate diagnosis of cerebral disease. We know now a great deal more than was known a few years ago, but still there are regions which are practically to us a *terra incognita*, and it will require much laborious work before we can say we have gained a thorough knowledge of the functions of the brain. There are a good many differences still prevailing among those who believe thoroughly in the doctrine of localization in regard to the exact limits of the region supposed to be endowed with specific functions. These differences are regarded by the opponents of localization as signs of a

divided household. He did not think so. He regards them as signs of healthy activity. They are only family jars.

As there were several speakers to come after him, who were to address the Congress this evening, and particularly his distinguished colleague, Mr. Horsley, who has done so much for cerebral surgery, he would no longer trespass upon the patience of the audience, but would thank them for their very great reception of this evening, with which they had favored him.

MR. HORSLEY remarked that, in the course of what he had to say, he should have occasion to refer to numerous experiments. These experiments have been performed by himself in conjunction with other observers, and therefore when he referred to them as his own work he wished they should understand that he was simply the spokesman of his colleagues, Prof. Shäfer, Beevor, Gotch, and Dr. Semon. The subject is so enormous, he was at the greatest difficulty to know in what way he could be of any service to the meeting. It occurred to him that he had better take up a distinct line and give in detail, so far as he was aware, the latest points that have occurred in that line. He would, therefore, give some facts and ask them to take on trust the observations on which these facts, in a great measure, rest. He would confine his remarks entirely to that region which Prof. Ferrier was the first to map out, viz., the so-called motor region.

He believed in the so-called motor region they had three functions clearly represented:

1. Slight tactile sensation.
2. The so-called muscular sense.
3. Movement.

He would ask them to remember the yet more fundamental principles which underlie our information on this subject. They must understand that these three functions are wrapped up closely together, and that in each particle of the cortex there are represented all the segments of the body in a varying degree. If they adopt the views of Dr. Hughlings Jackson, of course they all believe that in the corpuscles of the fourth layer is the seat of representation movement. It seemed to him that they cannot refuse to believe that the small corpuscles are similarly the seat of representations of 1 and 2, *i. e.*, sensory representations. The evidence upon which this belief is founded is to be found in experimental evidence and clinical observations. Facts of this kind he has published at length.

Passing from the representation of a tactile and muscular sense, he would say a word or two upon the needs of representation of movement in this so-called motor cortex. It seemed they must consider this very closely if they were to gain an accurate knowledge of the representation of the different segments of the body. Prof. Ferrier was the first to give them a correct map of the representations of the face, arm and leg. Dr. Mills has stated that Prof. Shäfer and himself showed that the trunk was represented on the mesial surface of the hemisphere. Dr. Beevor and he believed it would be perfectly possible by laborious investigation to split up these centres very minutely. The method adopted was as follows: They divided this so-called motor area into squares two millimetres in length, and they excited each square of the cortical surface with a very weak faradic current—in fact, the weakest stimulus that would produce any movement at all.

He would illustrate the general result of the observation, and would take for that purpose the representation of the movement of the thumb. The representation of the thumb is focussed in front of the lower end of the intracranial sulcus, and it extends over a great deal of the upper limb area. This representation gradually diminishes in intensity of representation as we pass from the focus upward. The shoulder and the thumb form the two most important parts of the upper limb. The shoulder is represented in exactly the opposite part of the upper limb area to that of the thumb, and it conversely diminishes in intensity downward. The question of the limitation of the whole area of representation of any given segment is most important.

DR. FERRIER has always held that these areas are limited by hard and fast lines, and that no one area trenches upon another. Unfortunately, he could not follow his honored teacher in this belief. He was perfectly sure these were what may be called border centres, and in one portion of the brain Dr. Ferrier himself drew attention to the fact that in one spot we have representation of the two limbs. The representation of the face at its upper border merges into the representation of the upper limb. So if they have a focal lesion at that spot there are two "signal" symptoms. For diagnostic purposes it is absolutely necessary for us to be aware of the relation of one focus to another.

He would now turn to the question of the representation of the character of movement. Dr. Ferrier, in his monograph published in 1874, pointed out that in certain parts of the so called motor region there were certain movements represented. Dr. Beevor and himself carried this further, and could trace gradation of representation of different movements. He would give two examples. At the upper part of the upper limb region extension of the elbow is represented, whereas, in the lower part of the same region flexion is represented, and between the two there is confusion. This practically holds true of the various segments of the body.

He would give one more example, which gives him special pleasure. It is an example of the representation of extension of the wrist which Dr. Keen referred to in his cases before the Surgical Association. In his diagnosis he had figured the exact spot where, according to Dr. Beevor, extension of the wrist is most represented, that is the anterior border of the upper limb region. This point is specially interesting to them, because they are in a position to show that extension of the wrist must precede every fine movement of the limb. This brings to a conclusion what he had to say of representation of movement. The facts referred to as being observed by Dr. Beevor and himself are in harmony with the facts observed by Prof. Shäfer and himself. There are minute points of difference due to the species of monkey employed. During the past two years they had employed but one species of monkey, viz., macacus sinicus.

He would now speak of cortical epilepsy. Cortical epilepsy consists of several stages of a preliminary aura, then a tonic stage, then a latent period, then the clonic stage, and then, finally, the stage of exhaustion or paralysis. For five years he has been making observations respecting the possibility of finding out which of these kinds of spasms in a muscle are due to the cortex cerebri alone. Here they must look upon the convulsion from two points of view. The connection between the cortex

and the spinal system is, of course, brought about by the pyramidal tract. Now, obviously, if they investigate the convulsed muscles by the ordinary graphic method, they should obtain a tracing, the uprising of which indicated the tonic stage, then a pause and a fall; then little waves to indicate the clonic convulsions which suceeeded the tonic stages. It might be thought the whole of these convulsions was due to the cortex, or the tonic stage to the cortex alone and the clonic to the spinal cord alone. Gotch and he had found it possible to tap the pyramidal in the dorsal region and then to stimulate the cortex and measure with a very delicate electrometer changes in the pyramidal tract. The variations indicate the impulses coming down from the cortex streaming down the pyramidal tract. It is perfectly justifiable to assume that these variations exactly correspond with the nerve impulse. Of course, they know nothing of nerve energy itself except its speed of transmission. Therefore, they investigate its character by means of the concomitant negative variations which attend the passage of nerve impulses. They had thus found that the whole of the character of the convulsion is entirely due to the cortex; with this electrometer it is possible to photograph a record, and the photographed record is given under the graphic record on this diagram. And they can see they correspond in character.

He would now conclude with a few remarks upon the so-called practical part of the subject—he meant cerebral surgery. There are a few points of special character, and to these he would allude. He had nothing to add on the subject of his previous papers.

The bone is marked with a fine drill through the scalp. He would urge the cutting out of a piece of bone by an inch drill. Then quickly, with a circular saw, open a large area by almost cutting through the skull, then with a very careful brim forceps quickly cut away the area marked out. Before, of course, such forceps are applied to the skull it is best to separate the dura mater. The dura being exposed if we perform exploratory operations, it is, he thinks, a terrible thing for the patient if the dura is not opened. He was perfectly aware that the risk was greatly increased if care is not used in the preparation of antiseptics for the operation.

With regard to faradism this is a point upon which the activity of his American colleagues had gone further than in Europe. Many interesting practical points are to be gained from faradism of the cortex if it is exposed.

He now passed on to hemorrhage. He believed the parenchymatous oozing may be stopped by the use of morphia and ergot, as Dr. Keen has suggested. But the ligature must always be applied, if possible. The wound should never be plugged, as it is disastrous to do so. The method of ligation is with catgut, applied by exactly even and gentle traction on the two ends, so as to avoid cutting through or tearing the delicate vessel.

He would refer to a source of regret in this kind of surgery, viz., the death of the patient. He would say that it is exceedingly dangerous to operate upon a patient who is under the influence of drugs and especially the bromide of potassium. They should endeavor, as far as possible, to take the patient from under influences of that sort.

Another regrettable point is the failure of the object for which the operation was undertaken, viz., recurrence of the epilepsy. He believed this was almost invariably due to incomplete operations. Cases in which he had completely removed not only the lesion but also at least one centimetre of the surrounding brain substance remained free from epilepsy. The cases in which the epilepsy recurred he did not remove, to his entire satisfaction, all the damaged brain substance around the lesion.

The prognosis of a case after operation must be guarded. If we operate upon such cases, it must be early. He thought there was some danger of doing too much in certain cases. He believed, on the other hand, that they stood in considerable danger from statistics.

In conclusion, he begged to thank the members for the very kind manner in which they had received him to-night, and also for the generous feeling of hospitality and friendship with which they greeted him on his visit to this country.

DR. KEEN, of Philadelphia, said that we distinguish in the body three cavities, the cavity of the heart, the cavity of the chest, and the cavity common to the abdomen and pelvis. In the chest and the abdomen and pelvis we recognize a large number of separate and distinct viscera with separate and distinct functions. We can investigate the diseases of each viscus and locate them according to the physical signs and the symptoms presented by the history of the case. Until very lately the head was regarded as a cavity containing one viscus acting in its entirety like the liver, spleen, or kidney. If it were affected, we were not able to distinguish one part from the other, but in his opinion we ought to regard the brain cavity precisely as we regard the chest cavity or the abdominal cavity, as a cavity containing a number of viscera, fused physically but separate physiologically.

If we recognize this fact that the head cavity is a cavity containing a number of viscera, and that each viscus has its appropriate function, we shall at once have a much clearer conception of the functions of the head and its viscera, and, therefore, of their diseases and injuries.

He was very glad that a warning note had been sounded to-night, both by Dr. Ferrier and Mr. Horsley, as to over-rashness. We are only just beginning to find out what operative surgery can do in the brain. We are in danger of very greatly overdoing it, while on the other hand we must be equally cautious in the other direction. We must take, in the head cavity, a warning and an encouragement from the history of the surgery of the abdominal cavity. The timidity with which surgeons approached the abdominal cavity, was somewhat remarkable in the early days of abdominal surgery. Their boldness now is almost appalling, and the success equally gratifying. He was very glad to hear Dr. Parks, to-night, advocate exploratory operations. We must do with the head cavity just what we do with the viscera of the abdomen. We must sometimes open the abdominal cavity in a case of intestinal obstruction, in order to make a diagnosis, and we must do so in the case of the head. We have all got to learn the limitations of operative interference from experience, and at present we have to make the experience.

A very good illustration of this was furnished to him recently. A gentleman consulted him with reference to an intense headache in the back of the head, presumably the result of a fall. He called Dr. Mills and Dr. Oliver to examine the case, and they found no localizing symptoms. He declined to operate on the ground that he could find no localizing lesion. The patient afterward

went to Dr. Weir. Dr. Weir trephined him, basing his operation on the point of the focus of the headache, and he cured his patient. He did not suppose Dr. Weir understood anything more about the nature of the trouble than he did, but he did better with his patient. This is a simple illustration of what boldness will sometimes accomplish.

DR. M. ALLEN STARR, of New York, said that it was evident, from the statements to which they had listened, that cerebral surgery has a great future, but that it is largely dependent upon neurology. The surgeon is ready to proceed when the neurologist can indicate the way. The responsibility for future progress rests with physicians. It is to be met by the careful observation of cases, their thorough examination, their collection and analysis; for it is by this method that progress has always been made in the past. The examination of cases has not always been complete, and needs careful preparation. This was especially true of the cases assigned him for discussion, viz., disturbances of speech.

In the history of aphasia there have been three epochs. First, that of Broca, when it was established that lesions in the posterior part of the third frontal convolution of the left side in right-handed and of the right side in left-handed persons caused aphasia. Secondly, the epoch of Wernicke, in which a broad distinction was made between motor aphasia, the variety described by Broca, and sensory or amnesic aphasia, the lesion of which Wernicke showed to be in the first temporal convolution. Thirdly, the epoch of Charcot. Charcot says "a word is a complexus; in it one can discover four distinct elements: the auditory memory-picture, by whose means we are able to grasp the sense of words heard; the visual memory-picture, which enables us to comprehend the words written or printed; and also two motor elements—that is to say, the motor memory of articulation and the motor memory of writing: the first developed by the repetition of movements of the tongue and lips necessary to pronounce a word; the second, by the practice of motions of the hand and fingers necessary for writing." These memories, then, joined by anonation, form the mental substratum of language. But since they are distinct, each may be lost, while the others remain.

The loss of visual memories results in word-blindness; the loss of auditory memories, in word-deafness; the loss of motor memories, respectively in agraphia and motor aphasia. Individuals differ widely in the development of various mental powers, some remember things seen better than things heard, faces rather than names; others write down what they wish to remember. In these different persons aphasia presents different features; the student suffering more from word-blindness than the laborer.

Each of these clinical distinctions has a pathological basis. Motor aphasia is due to lesion of Broca's centre, and this is easily accessible to the surgeon in case the disease is open to his interference. The lesion in agraphia is still undecided. The situation of the lesion causing word-deafness is in the first and second temporal convolutions in their posterior two-thirds. (A diagram was shown, on which all the cases of pure sensory aphasia hitherto published were laid down (forty-three in number), and the situation of the lesion was shown.)

Word-blindness was also discussed, and shown to be due to a lesion in the angular gyrus. This symptom is often attended by psychical blindness, in which the patient can see but cannot recognize objects. The lesion in these cases is deep, involving the association fibres beneath the angular gyrus. It may be possible in future to select lesions of other association tracts beneath the cortex if cases are properly tested—such acts as repeating words after one another, copying, writing at dictation, involving the action of these tracts.

Pure aphasia of any of these varieties is rare. The usual form is mixed aphasia, both sensory and motor elements of speech being affected. Here the lesion is in the Sylvian region, and involves both temporal and frontal lobes. Here it is accessible to surgical interference, and the indications are plain. For though we can no longer speak of the speech-centre, we can speak of the centres of motor and sensory and mixed aphasia, and each offers a sufficient guide to the surgeon, as definite as motor spasm or hemianopsia.

DR. ROBERT F. WEIR, of New York, said that he had been always very handsomely treated by physicians, and he had been very handsomely treated to-night by Dr. Keen.

It had been his good fortune, commencing in 1883, to have practised what is now called brain surgery in ten instances: three times for tumors, three times for cerebral abscesses, twice for hemorrhage into the cerebrum where there was no external hemorrhage, once for epilepsy, and once for cerebral pain.

His last case of brain surgery, which had been made the subject of a paper by Dr. Seguin and himself in the *American Journal of the Medical Sciences*, is exemplified in the brain he would pass around for inspection. This case illustrates a point of some importance. It was so deep that in exposing the brain they were within an ace of not recognizing the tumor. It was only detected after some difficulty, deep in the brain substance. Bergmann has stated that an operation for the removal of a brain tumor should not be undertaken, first, when the tumor is large; and, second, when the patient is in a state of coma. Dr. Keen removed a tumor over four ounces in weight, and recovery took place. Mr. Horsley removed a four and a half ounce tumor from a man in a state of coma. So he thinks facts are at variance with this theory of Bergmann.

In the first case of tumor upon which he operated there was an error of diagnosis. The brain was opened and no tumor found. The bone was replaced, the skin was fastened, as advised by Horsley, and the patient recovered. The headache disappeared altogether, paralysis improved, and the patient lived two months. Another case was reported by Mr. Heath, of London, in which the tumor was attached to the bone at the base of the skull, and was not removed. The headache was relieved, paralysis improved, and epilepsy ceased for a time.

In cases of hemorrhage threatening life his plan is to do the operation as an exploratory one, take away a portion of the skull, and if he finds the blood-clot remove it.

He had gone over the brain a year and a half ago to see how much could be done in the way of surgery, to find out whether the longitudinal sinus and lateral sinus were things we could avoid. He found he could strip them up from the anterior surface of the skull to a goodly length. He had stripped the lateral sinus from its bed

to a distance of about an inch. He had stripped up the dura upon a living subject in ear trouble to a distance of one and a half inches. He had been able to raise up the frontal sinus until the anterior glenoid processes were exposed. He had been able to feel the foramen magnum. He had recently tapped a cerebral abscess on the under surface of the sphenoid bone just anterior to the foramen rotundum and ovale being led to these regions by necrosis. He believed one can reach very many portions of the brain providing our neurological friends give us information thereon.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting,
Held in Washington, September 18, 19, and 20, 1888.

TUESDAY—MORNING SESSION.

The Association was called to order, at 10 A.M., by THE PRESIDENT, D. HAYES AGNEW, M.D., of Philadelphia.

The first business was the delivery of

THE PRESIDENT'S ADDRESS.

(See page 316.)

DR. JOHN ASHHURST, JR., of Philadelphia, presented

A CONTRIBUTION TO THE STUDY OF EXCISIONS OF THE LARGER JOINTS,

based upon the records of 120 cases in which excision of the larger joints have been required; embracing 10 of shoulder-joint; 19 of elbow-joint; 40 of hip-joint; 51 of knee-joint; and 6 of ankle-joint excisions.

The large majority of the excisions had been performed without any of the so-called "antiseptic precautions," and the wounds had been dressed with simple oiled lint, or with lint saturated with dilute alcohol. For more than a year past, however, he had employed the antiseptic method in almost all his large operations, using also antiseptic dressings in their after-treatment, and with benefit; though as regards the ultimate welfare of the patients he has not noticed any gain. His best series of consecutive successes had been obtained under old methods, and he had not obtained any diminution of mortality by the adoption of the new. At the same time he had seen no ill results which could be attributed to the use of antiseptic measures; their use shortens the period of convalescence, and they have the merit on account of the infrequent change of dressings needed, that they greatly lessen the surgeon's labor.

DR. F. S. DENNIS, of New York, called attention to cases of excision of knee-joint for disease beginning in abscess in the condyle. In these cases the abscess cavity breaks down after recovery, leading to the production of deformity. In these cases he takes away all of the abscess-cavity, saws away a corresponding piece from the tibia, and brings the oblique surfaces together.

He has been in the habit of employing antiseptic dressings, removing the drainage tube on the third day, allowing the first dressing to remain five or six weeks.

In excision for injury, only enough bone to allow of free drainage should be removed.

SIR WILLIAM MACCORMAC, of London, had heard with some surprise that the tendency seemed to be to postpone excision of hip-joint until all other measures had failed. This is not the practice in regard to any other joint. In England the disposition is to perform the operation at an earlier period. Another point that he had not heard mentioned in the paper was in reference to the performance of operation in cases of old dislocation of the joint. He had performed this operation with success in old hip-joint dislocation, and reported the case of a sailor coming under observation three years after the occurrence of dislocation of hip-joint which had not been reduced. After the operation he could use the limb perfectly. He had been much interested in the recommendation of Dr. Ashhurst that a long incision be made to reach the subcrural bursa, a suggestion which he had not heard mentioned by any other surgeon.

DR. E. M. MOORE, of Rochester, had been somewhat surprised to hear a certain amount of indifference expressed toward the use of antiseptic surgery. He had found in his practice the greatest improvement follow the use of antiseptic dressing in these cases of excision. He cited several cases showing the result obtained.

DR. JOHN E. OWENS, of Chicago, agreed to the value of the wire cuirass, and referred to a modification of this apparatus consisting in the substitution of a frame of gas-pipe conforming to the outlines of the body. On this the body is supported by means of flannel stretched between the two sides of the frames. Extension may be applied, if desired, by the use of adhesive plaster, counter-extension being provided for by elevating the foot of the frame. After keeping patients in bed for thirty days, he tries to get them into the open air. He had found great advantage in keeping up a certain amount of extension after the patient was allowed to get up. By removing pain this enables the patient to move the joint more freely, and thus tends to far greater mobility of the part. He thought that there was no comparison between the antiseptic methods and those formerly employed.

DR. FRED. LANGE, of New York, referred to a class of cases in which the disease of the hip began in the tissue outside of the joint, the articulation becoming involved at a later stage of the affection. In these cases he recommended early operation with the hope that in this way necessity for opening the joint would be avoided.

AFTERNOON SESSION.

DR. NICHOLAS SENN, of Milwaukee, read a paper on

THE RELATION OF MICROÖRGANISMS TO INJURIES AND SURGICAL DISEASES.

At the present time no argument is required to show that many special conditions are due to the presence of bacteria. In regard to the so-called hereditary transmission of disease, the author held that the specific microbes of the specific diseases are transmitted directly from parent to child. In evidence of this he referred to cases of so-called hereditary osteomyelitis in newly born infants. In other cases, while this same origin may be inferred, we have as yet no direct evidence that such is the case. In regard to the question whether or not pathogenic microörganisms exist in the healthy body, while the results of some observers point in this direction, the results of others are opposed to the existence of pathogenic organisms in the healthy body. The conclusion was that under certain circumstances pathogenic

organisms might be present. There is proof of this in cases in which, after accidental injury, there is localization of these pathogenic organisms. Acute suppurative infectious osteomyelitis, following slight injury or exposure, was cited as an illustration of this fact. This localization is favored by certain anatomical conditions. The antagonism among microörganisms was being considered when the time of the author expired.

DR. ROSWELL PARK, of Buffalo, had done some work in this direction. He had examined pus from fifty-two sources, and presented a table showing the number of cases in which pyogenic bacteria were found. He had also prepared culture media with various antiseptics in different proportions, includlng carbolic acid, iodoform, iodine, naphthaline, hydro-napthol, resorcin, trichlorphenol, creolin, sulpho-carbolate of sodium, boric acid, perchloride of iron, antipyrin, antifebrin and quinine. Almost the only one of these antiseptic jellies as thus prepared which has prevented all growths was hydronapthol, 1 : 100. This shows that hydro-napthol can be relied upon as an antiseptic. Many of the bacteria grow freely on iodoform jelly, 1 : 100. Those which grew abundantly on iodoform jelly grow slightly on oxide of zinc jelly 1 : 100. Oxide of zinc was considered a better solid antiseptic than iodoform. The author thought that our present knowledge permitted us to associate certain bacterial forms with definite pathological lesions. In conclusion he presented the report of a case of abscess of the face in which he found the micrococcus tetragens. So far as he knew, this microörganism had never before been found in phlegmon in man.

DR. WM. H. CARMALT, of New Haven, remarked that there was only one point to which he wished to refer, that was in reference to the alleged microbic origin of tumors. A great deal has been said in regard to the microbic origin of cancers and other tumors. He thought that the division of Virchow's class of granulomas into a class of tumors by themselves, known as infectious tumors, is correct. This class includes tubercle, syphilomes, lepra, lupus, actinomycosis, and myelitis. These growths should be taken out of the class of tumors and assigned to a class by themselves. He had been unable to convince himself that tumors proper have a bacteriological origin.

DR. N. SENN, in concluding the discussion, said that the diseases, enumerated in his paper, included only those in which the specific cause had been isolated, cultivated outside of the human body, and in which the injection of this culture produces identical lesions. When these three things are done we have furnished positive proof that the disease is due to specific germs. Another class of diseases had been alluded to in the paper in which there was reason to believe from analogy that the affection was due to specific germs, althongh the three conditions above referred to had not as yet been fulfilled. So far no one had been able to show that the supposed bacillus of syphilis was the specific bacillus. That it is a specific disease connot be doubted; that it is due to a microbe cannot be doubted, but to establish this positively, experimenters must do what Koch did before he announced the specific origin of tuberculosis.

He was firmly convinced from his observations that tumors in the true sense of the word were not due to microbes. He had made tumor implantations for many years in animals, and in justifiable cases in man, both close to the original seat of disease and at remote points, without obtaining the least evidence of the *microbic origin* of disease.

DR. W. W. KEEN, of Philadelphia, then read a paper entitled

THREE CASES OF BRAIN SURGERY.

The first case was one of removal of a large tumor from the brain; the second, trephining for old depressed fracture followed by epilepsy, with removal of underlying brain substance; the third was the removal of the cerebral motor centre for the left wrist and hand, for epilepsy. The three patients were presented, and his paper will be found in full in the October number of *The American Journal of the Medical Sciences.*

AMERICAN GYNECOLOGICAL SOCIETY.

Thirteenth Annual Meeting,
Held in Washington, September 18, 19, and 20, 1888.

SEPTEMBER 18TH.—MORNING SESSION.

THE PRESIDENT, DR. ROBERT BATTEY, of Rome, Ga., called the Society to order.

DR. S. C. BUSEY, of Washington, then made an

ADDRESS OF WELCOME.

He alluded to the courtesy of the Boston Fellows in yielding their claim to the meeting, which had been appointed for their city, thus allowing Washington to entertain the Society at the same time with the other societies of the Congress, of which he felt that this Society should be a part. The object of that Congress was to unite men of high professional standing in the various departments of medicine from all parts of the country. The American Gynecological Society had many eminent members, and the Congress was incomplete without them. The Society had furnished thirteen volumes of transactions in the course of its existence, the character of which testified to the good its members had done, and to their advanced scientific standing.

DR. FORDYCE BARKER moved to reconsider the action which had been taken at the last meeting, and to accept the report of the committee which recommended

JOINING THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

This was seconded and carried unanimously.

DR. FORDYCE BARKER was appointed a committee to inform the executive committee of the Congress of this action of the Society.

DR. HOWARD A. KELLY, of Philadelphia, read a paper on

URETERITIS, ITS DIAGNOSIS AND SYMPTOMATOLOGY.

Catheterization of the ureters is a proceeding which is very useful in the diagnosis of disease of the ureters and the pelvis of the kidneys. Ureteritis is probably more common than has usually been supposed, While this method of procedure is of comparatively recent date the disease—ureteritis—was recognized years ago by Rayer and by Cruveilhier. It may be either descending or ascending; perhaps it is more commonly secondary and descending. It may also be ascending, following gonorrhœa and other diseases which affect the bladder. The ureter may also be diseased from the passage of renal

calculi, and as a complication of many forms of disease of the uterus and its surroundings. Hence it is important that the functions and the condition of the ureters should be carefully ascertained in any suspicious case. These and other facts suggest that more careful study of renal and bladder troubles is now in order for scientific gynecologists.

Examination of the ureters may be made by inspection, by palpation, and by catheterization. The first may be practised by splitting the vesico-vaginal septum at the proper level, then turning the opening into the vagina, as suggested by Dr. Thomas Addis Emmet. This may be done by pressure from without, or by pressure through the rectum, as suggested by Dr. Polk. By palpation the course of the ureter is to be followed by delicate touch, compression being exercised both through the abdominal wall and the vagina. If the ureter is dilated, its course may not infrequently be traced by this means. The method of catheterization is, however, the most practical, and the method of Pawlik, that of free-hand catheterization, is believed to be the most applicable. To perform this operation the patient is placed in the dorsal position, the perineum is retracted with Simon's speculum, and Pawlik's fine silver catheter is introduced into the bladder, the base being searched by it until the depression at the mouth of the ureter is felt, when the catheter will slip in, guided by the eye and the finger. Once in the orifice it may be pushed along as high as the level of the crest of the ilium, beyond which it is not safe to go.

In three cases of supposed bladder trouble he found that it was the diseased ends of the ureters which were causing trouble, the trouble disappearing when these were cured. Other cases were also narrated to prove the value of this method of procedure. The literature of this subject is not extensive and includes, in addition to the papers of Pawlik and Simon, the theses of Bonnet and Chaumont, and the recent paper of Silbermann.

DR. POLK found the subject one of great interest, and had given much time to its consideration, both upon the living and the dead subject. The method of examining the ureters which was most commonly referred to was Pawlik's. He had made many trials of it, but usually without much success. He had found more satisfaction in making a buttonhole fistula at the base of the bladder as recommended by Dr. T. A. Emmet, and then by suitable pressure the ends of the ureters could be made accessible. In palpating for the ureter it is to be remembered that it is between the line of the uterus and the brim of the pelvis. For a catheter he preferred one of broad curve like a prostatic catheter, and after this had been entered another instrument should be passed into the rectum, with which the onward course of this instrument in the ureter could be traced.

DR. H. D. BYFORD, of Chicago, had practised palpation of the ureters in one hundred cases, desiring to find a simple method of determining its course. If the uterus is taken as a centre and the finger in the vagina be made to radiate from it along the pelvic roof, a line would at length be reached where a gentle resistance of a cord-like body would indicate the presence of the ureter. This line having been determined, it would not be difficult after a little practice to find the mouth of the ureter and introduce a catheter, the catheter being guided by the finger in the vagina.

DR. W. H. BAKER, of Boston, thought that very few obtained sufficient skill to catheterize the ureters. He believed the method was of value, however, in enabling one to give a diagnosis as to the extent of diseases of the bladder, etc. It must not be forgotten, in all these manipulations, that there might be displacement of the ureter as had occurred in his experience.

DR. H. C. COE, of New York, found in three autopsies that pressure was exercised upon the ureters two inches from their endings by cicatricial nodules which were associated with uterine disease. This condition might have caused dilatation of the ureters which would have admitted of their determination by palpation.

DR. BACHE EMMET had found that as good results as by any method could be obtained as to determining the position of the ends of the ureters, by making a fistula in the base of the bladder then pressing in the median line of the abdomen, then varying the pressure to one and then the other side. He believed that ureteral trouble complicated various uterine troubles, and that a diagnosis of pelvic disease could hardly be considered complete until the condition of the ureters was known. He did not believe that disease of the ureters was a very common complication of bladder disease.

DR. KELLY, in closing, detailed the experiments of Tuchmann, Silbermann, and others in catheterization, and showed the value of the operation. He thought disease of the ureters could not be called uncommon, that it might be due to inflammatory deposits, displacements, etc., and that examination of these organs was eminently simple and practical.

DR. THOMAS ADDIS EMMET, of New York (by Dr. Duncan Emmet), read a paper entitled

CAUSE AND TREATMENT OF URETHROCELE.

This condition is generally considered as due to a loss of support in consequence of laceration of the perineum, but it is never found after first labors unless the rupture has extended through the sphincter ani. It always exists after serious double laceration of the cervix in consequence of severe labor, which may have been either rapid or tedious. The former is the more common cause, the latter sometimes acts as a cause when ergot has been given or when the labor has been instrumental. The trouble is usually in the lower or vaginal part of the urethra. In some cases the accident is doubtless prevented when a few ounces of urine are in the bladder during the expulsion of the head, the urine acting as a cushion and only being discharged as the space is required. This is contrary to the long accepted dictum that the bladder must be empty when the head is delivered. The laceration may be transverse or longitudinal, and a few fibres or many may be ruptured. There is seldom a rupture through the vaginal mucous membrane. Urethrocele must be differentiated from the thickened condition of the urethra in which there is no rupture. In urethrocele the length of the urethra is diminished, a pouch being formed in which the urine collects. Serious reflex symptoms may be excited by such a condition as is shown in a very aggravated case narrated in the paper. He repeated his opinion expressed in his paper before the Society in 1882, as to the value of the buttonhole fistula operation, which is the means by which urethrocele also may be effectually treated.

DR. PRIESTLY, of London, referred to a paper written by him in 1869, in which he referred to sebaceous cysts of the urethra which he thought formed a condition somewhat analogous to that referred to by Dr. Emmet in his paper. He thought such conditions as Dr. Emmet treated of might be due to other causes than labor; for example, a sebaceous cyst of the urethra which he had seen had arisen entirely independently of labor.

DR. SKENE, of Brooklyn, thought that cystocele and urethrocele were very apt to be confounded. In his experience it was not the lower portion of the urethra which was apt to be involved as the result of severe labor. Complete dislocation of the urethra, the latter being torn from its attachments at the pubic arch, was a more common accident of labor than the sacculated condition to which Dr. Emmet referred, and he believed the longitudinal or transverse ruptures of the fibres of the urethra to be relatively rare. The buttonhole operation would be of no use in cases of dislocated urethra, but for the sacculated condition it would apply. Bozeman had described the dilated condition of the urethra following labor ten or fifteen years ago, and had suggested the opening of the urethra as a means of relief.

DR. LUSK, of New York, had found Emmet's operation very efficient in a very troublesome case which had long been under his observation, and had, finally, been cured by Dr. Emmet. Since then he had performed the operation in several cases with great satisfaction.

DR. KELLY referred to a case of urethrocele which had been reported by Dr. Skene Keith, and upon which he had performed Emmet's operation with marked success. Urethrocele should be differentiated from false urethrocele or pouting of the urethra, which was often caused by straining in urination.

DR. SUTTON, of Pittsburg, read a paper on

THE TREATMENT OF PELVIC ABSCESSES.

He referred to those abscesses which often resulted from pelvic cellulitis, though this condition did not usually terminate in abscess. There are septic and aseptic forms of this condition; in other words, there is one class of cases in which the septic element is well marked, and another in which it is not well marked. Sepsis may be due to dirty instruments, dirty fingers, etc., during labor, or from inoculation by the lochial discharge. Septic material may also be introduced in other ways and set up inflammation in the cellular tissue, the lymph vessels or the veins. Peritonitis may also accompany such conditions. Abscess may also occur in virgins and in those who have passed the menopause, without any appreciable septic origin. Such cases are commonly called idiopathic; they may arise from exposure to cold, sudden stoppage of the menses, etc. The treatment for such cases is usually hot douches, opium and poultices. He believed that a blister was better than poulticing, or an ice-bag might be applied to the abdomen. If there were tympanites, he prescribed an enema of hot soapsuds, or a dose of sulphate of magnesia. Of the febrifuges he preferred quinine, though he had had no experience with mercury, the salicylates, etc., for this condition. In spite of all care septic symptoms would sometimes appear, and bye and bye there would be fluctuation in the rectum, the vagina, or the iliac region. To evacuate the pus he used a knife, a trocar, or the actual cautery, irrigated the cavity, and then introduced a drainage tube. Accompanying conditions were usually hard masses in the pelvis, fixation of the uterus, and the pressure of pus in the vagina, rectum, or bladder. The most favorable location for evacuating the pus was the vagina. Pus in the Fallopian tubes was best treated by laparotomy, the same being true of large abscesses elsewhere in the pelvis. If a sinus opened upon the skin counter-openings should be made in the vagina, and drainage effected by this avenue if possible. The entrance to the sinus should be dilated, and the sinus curetted and irrigated. If the opening were in the rectum it should be dilated and the cavity washed out with bichloride solution 1 : 1000, the rectum having first been irrigated. The general health of patients with such conditions often rendered the prognosis bad. Bitter tonics, alcohol and malt liquors should be given, and the patient should be fed as freely as circumstances will admit. The cases not infrequently end in tuberculosis and death.

DR. GOODELL, of Philadelphia, had never seen pelvic abscesses arise from gonorrhœal poisoning, though often from septic influence of other character. It was not rough treatment during operations which led to these abscesses, but uncleanliness. Such abscesses in virgins are associated with the catamenial period, and are aseptic. He preferred to open such abscesses with a blunt instrument, such as a pair of scissors, dilating and then draining. If the opening be in the rectum, it is better to insert a probe in the direction of the vagina and then make a vaginal opening. If the rectal opening is enlarged, there is danger that feces and poisonous gases may enter the sinus, and then poisoning will result. If the abscess can be felt *per vaginam*, an opening should be made in the vagina and a drainage-tube inserted, but some abscesses never become large enough for such treatment. If laparotomy be performed, and the conditions are such that the wound cannot be well drained, it is better to make another opening into the vagina and drain in that direction. For irrigating sinuses in the rectum, he preferred permanganate of potassium to the bichloride. A vaginal opening is always to be preferred for drainage, if it can be secured.

DR. WILLIAM H. PARISH, of Philadelphia, thought that abscesses in the pelvic areolar tissue after labor were almost always septic, and should not be operated upon early. An aspirator should never be used for such abscesses, except for purposes of exploration, and he seldom used them for any purpose. If the abscess pointed low in the vagina, a superficial incision should first be made, then a grooved director should be thrust in, and the incision enlarged by cutting upon this. It is not safe to wait until the abscess becomes a tumor sufficiently large to be apparent in the abdomen. In some cases he had succeeded in following the track of the abscess with his fingers, enlarging and breaking down the cavity as he proceeded, then draining, without opening the vagina at all.

DR. T. GAILLARD THOMAS, of New York, differed with the reader in respect to treatment. He recognized three varieties of abscess: one described by Bennett as an inflammation of the tissue between the layers of the broad ligament, a second occurring in the tissue posterior to the uterus, and a third in the tissue anterior to the uterus, between the uterus and the bladder. Yet another form was that which was associated with pyosalpinx, and may frequently be reached by a vaginal incision, thus avoiding

laparotomy, which must always involve the greater danger. The sooner these abscesses are opened the better for the patient. Without being too definite, it is safe to say that a phlegmon which has existed for a month should be explored. It is not safe to wait for fluctuation, for that may never appear. There is a decided difference in the rapidity of development of abscesses which are associated with parturition and those which arise from other causes; the former develop rapidly, the latter slowly. It is not wise to wait for the appearance of constitutional symptoms before operative treatment is begun. He believed there are only two passages by which pus should be evacuated from the pelvis—the vagina and the abdomen. One should never open into the rectum or bladder. His method of operating upon the different forms of abscess was then described. If the abscess points at the abdomen, a long incision should be made along Poupart's ligament, which should be irrigated and drained, but the vaginal opening should always be preferred if possible.

DR. T. GILL WYLIE, of New York, thought that the theory of cellulitis as a cause of abscess had been greatly overrated. Excluding acute abscesses arising soon after labor, he believed that almost all pelvic abscesses originated in salpingitis and ovaritis. He believed that too much stress was laid on treating such abscesses by the vagina, and too little by laparotomy. The disease was not usually treated radically until the abdomen had been opened and the tubes, which were the centre of the disease, removed. Should the abscess point in the vagina it may be opened there, but, frequently, one gains a clearer knowledge of the case and is able to treat it more intelligently if the abdomen also is opened, and the condition thoroughly investigated.

DR. POLK, of New York, found in 100 cases of pelvic abscess that had been attributed to cellulitis that such was not the cause, but that the cause was salpingitis, hence he had abandoned the common theory and gone back to that of Bernutz, which regarded tubal disease as the most frequent cause. With regard to the influence of septicæmia in such cases, the same principles obtain with respect to the uterus which hold in respect to other parts of the body. In those cases in which the abscess can be treated outside of the peritoneal cavity, laparotomy is not indicated, in all other cases laparotomy is urgent, that the condition may be radically disposed of and pyogenic membrane removed. In all the cases which the speaker had investigated since his change of belief he had found pyosalpinx, and for such a condition laparotomy is the only proper treatment. Should the abscess point in the vagina there is no objection to opening it there and draining.

DR. H. D. BYFORD, of Chicago, objected to the teaching that pelvic abscesses always resulted from pyosalpinx. He had not found that such abscesses point at the skin or in the vagina alone, nor even in the majority of cases. His plan was to open them by the most direct route, whether that might be into the bladder, or the rectum or elsewhere. The greater number of his cases had opened into the rectum, and most of the patients got well. They presented symptoms of diarrhœa, and examination would show pus in the discharges. He thought that there more recoveries from cases which opened into the rectum than from those which opened into the vagina.

DR. HOWARD A. KELLY had found that good results followed opening of pelvic abscesses with Paquelin's cautery. He had also used the method described by Dr. Goodell, the cavity being opened with blunt scissors, and the opening enlarged as the scissors were withdrawn. He did not consider it necessary to enucleate the walls of an abscess, as suggested by Dr. Polk, if only antiseptic measures were used to encourage the closure of the cavity.

DR. JOHNSTON, of Danville, believed that a better understanding of this subject would be obtained if the condition were compared with croupous pneumonia, with which it presented strong analogy. He had found no cases in which chronic cellulitis *per se* existed in the pelvic cellular tissue. Such an inflammation should follow the same law which it observed in the cellular tissue elsewhere, which was to undergo resolution after a longer or briefer period of time. He believed that the trouble in pelvic abscesses was primarily in epithelial structures, the natural development of which had been interfered with. The *rete mucosum* was the part which was involved—that is, the inflammation was primarily in the ovaries or the tubes.

DR. BALDWIN believed that pelvic abscesses were always due to inflammation of the tubes and ovaries, and that the only correct way to treat them was by laparotomy. By so doing, we could get directly at the diseased structures, and were not treating them in the dark. Even if the abscess can be conveniently reached by the vagina the period necessary for a cure is a long one, a mass of hardened tissue being left, which is long in disappearing. Removing the diseased structures by the abdomen a radical cure would be quickly effected.

DR. REAMY, of Cincinnati, admitted that the origin of the disease might often be in the tubes, but was unwilling to concede that it should never be treated per vaginam. Besides, it must be remembered that it was not always desirable to take away the possibility of offspring if the disease could be cured without unsexing the patent. He was positive that cases could be cured by vaginal incision and be able to bear children subsequently, as was proven by an interesting case which was narrated.

DR. SUTTON, in closing, recapitulated the various means by which infection might take place, and concluded that the old views, which assumed that pelvic abscess was caused by cellulitis, were passing away.

CORRESPONDENCE.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

(*From our Special Correspondent.*)

I WRITE to you in the midst of work now going on in the various societies constituting the first meeting of the Congress of American Physicians and Surgeons; which societies, by the way, some will persist in calling "Sections," recollecting, perhaps, the constitution of somewhat similar bodies in the past, and finding it difficult to realize the distinctive features of this Congress. As I desire you to have an early report for your next issue, of course I cannot embrace all the salient features of the Congress.

Rain, rain, outpouring and persistent in the beginning of the week, promised ill for the comfort of those who

came to Washington to attend the Congress, and even on the night preceding its opening, when so many assembled around the banquet table to welcome the foreign guests, the bad weather still persisted. But Tuesday opened bright and clear, and now, with the thermometer at 80°, and with pleasant air stirring, the atmosphere is quite bearable for those who do not make undue exertion. The breezes come from those flats which Dr. Busey says in his address of welcome, have for forty years furnished him with life-giving air, with every southern wind, and have not furnished him with the malaria of the correspondent or casual visitor—whose excesses, under another name, unlike the rose, would be better identified.

The Committee of Arrangements selected an admirable location for the Congress, and for a number of the societies, in the building erected by the Grand Army of the Republic; high, well ventilated, and with capacious rooms well adapted for the purpose in their acoustic properties. It is directly opposite to Willard's hotel—the place for registration and headquarters. It is, moreover, in full view of, and a short distance from, the celebrated Potomac marshes, and the Government improvement of the same, but the American Climatological Society—being located on one of the lower floors—unfortunately did not get the full benefit of their surroundings.

As these various meetings recur year after year, in the heat of the summer and early fall months, one cannot help asking the old question, why medical men will make themselves so uncomfortable at these seasons, to come back from cool summer resorts, with their early hours, simple diet, and light clothes, to the hot, dusty streets and hotels of a city, put on dress-suits, eat and drink what does not agree with them at the best of times, and keep late hours, scarcely seems in accordance with the canons of hygiene. New York, or even Boston, is not attractive at this season, much less Washington; while in a few weeks from now all of these cities will be at their best. Perhaps there is, however, some retributive justice in it; the school children who have had to come home from the seashore and country, to drone over their tasks in the hot school-room, have wondered why their family physician does not exercise his authority and come to their aid; perhaps they take some pleasure in seeing how the doctors like it themselves.

The banquet was really the affair which opened the Congress, although it was intended to be unofficial in its character, so far as it was possible under the circumstances. It preceded the Congress, and was a spontaneous welcome to the foreign guests by those who wished to participate, and to meet each other socially. It was served in the large dining-room of Willard's hotel.

At one end of and across the hall was a table at which were seated Dr. S. C. Busey, Chairman of the Committee of Arrangements, and at his right and left, respectively, Prof. von Esmarch, Sir Spencer Wells, Dr. William Pepper, Dr. John S. Billings, Sir William MacCormac, Dr. William H. Draper, Surgeon-General Moore, U. S. A., Surgeon-General Browne, U. S. N., Dr. D. Hayes Agnew, Prof. Annandale, Prof. MacCullum. At either end of this table were long tables extending down the length of the dining room at which the remainder of those present were seated; they were all medical men and honored the occasion by their presence, but there were far too many to name in a letter like this. Prof. Ferrier, Dr. Ord, Mr. Horsley, Mr. Durham and Dr. Pye Smith were among the foreign guests interspersed at the tables with their American colleagues. The menu was very prettily engraved in the usual form, and embraced the usual variety and mixture of English and French terms, which have become so familiar to us from long usage. A band of music played at intervals during the evening.

There were but very few toasts, some six or eight short speeches being made. Prof. von Esmarch gave a very pleasant address partly in English and partly in German, and Sir Spencer Wells and Mr. Ord made some very acceptable remarks. The others were mostly by our American physicians in response to calls. All who participated spoke of the occasion as a very enjoyable one, and when the formality was over and cigars were lighted, neighbors found very agreeable company in each other.

On Tuesday work began in earnest. The various Societies appeared to be well attended, by the members, there were few outsiders present, and each Society accordingly was more or less represented in the degree of the size of its roll of membership. The Surgical Society was quite full, the Society of Physicians was well filled, while, on the other hand, the Physiological Society had a scant attendance; that, however, may be accounted for in more ways than one, it was its first annual meeting, and it held its sessions in the Army Medical Museum, away from the city centres occupied by the other Societies. A great deal of honest, earnest, and satisfactory work was done in the Societies, which will, of course, be reported in due time, and through the proper channels.

The Congress organized as a body by Dr. Pepper calling it to order, in which, among other things, he stated that the idea of a conjoint meeting had taken definite shape before any preparations had been made for the meeting in this country of the International Medical Congress, but had been deferred so as not to interfere with that meeting. He expressed himself as being, with a large proportion of the members, warmly attached to the American Medical Association, and determined to exert influence to maintain and promote its success, and thought the plan of organization of the present Congress did not interfere in the least with that Association. At the close of his address he introduced Dr. Billings as the President. Dr. Billings did not make any formal address, as on Thursday night he closes the Congress by his address, but, after a few words introduced Dr. Busey who, as the Chairman of the Committee of Arrangements, welcomed the members. Dr. Busey's address was very well received and his labors were evidently highly appreciated, as they certainly deserve to be, his task having been a very onerous one. Rules for organization were submitted and accepted, one important rule being that the Congress meet triennially in Washington.

Tuesday evening the subject of "Intestinal Obstruction in its Medical and Surgical Relations" was before the Congress, and papers were read by Dr. Reginald H. Fitz, of Boston, and Dr. Nicholas Senn, of Milwaukee, and it was intended that Dr. William Pepper, Dr. J. Collins Warren and Dr. Thomas G. Morton, with others, should take part in the discussion, but the papers read took up so much time that, at their close, Dr. Pepper, when called upon, very happily expressed the desire of hearing some of the foreign medical men present upon

the subject, and he was gracefully seconded by the President who called up in turn Dr. Durham, Dr. Ord, and Mr. Annandale. Dr. Warren having also followed Dr. Pepper in yielding the floor.

This proved to be a very enjoyable part of the discussion. Dr. Fitz's paper was carefully prepared and well received, and Dr. Senn illustrated his paper with valuable pathological specimens, and was very eloquent upon the subject of the ileo-cæcal valve, etc.; but the foreign guests, with their earnest and off-hand treatment of the subject, added very much to the interest shown. They were all men who have paid special attention to the subject. Dr. Durham especially, having, as he stated, furnished Quain with his article on the subject for his Dictionary. Dr. Durham made quite an address and was very forcible in his remarks; and while he complimented highly the American profession, and expressed his great pleasure at his reception here, like a true Britisher, he did not hesitate to contradict forcibly some views that had been previously expressed. Dr. Durham is tall and spare, with a clear-cut, pleasant face, and has the appearance of being an earnest and hard worker.

Dr. Ord, who succeeded him, was a smaller man, rather inclined to be stout, smooth face, muddy complexion, and a fair type of the Englishman, with a very genial, comfortable manner and expression. His remarks were easy and to the point. Dr. Ord is a prominent London practitioner and is connected with St. Thomas's Hospital.

Mr. Annandale, who was the last speaker, made but a few remarks, having only just arrived in Washington, his steamer having been delayed by its encounter with the recent cyclone.

At the close of the Congress the members passed across to Willard's, where a very satisfactory collation was ready for them, and the remainder of the evening passed in eating a little and smoking and talking a great deal. Everybody was in a good humor and glad to see each other, and matters were freely discussed. One pleasant feature of the evening was the presence of so many of the local profession and their evident intention to enjoy themselves and help make the occasion a pleasant one for the visitor.

Professor von Esmarch is, of course, one of the most distinguished of the foreign visitors, and is of interest also to the general public as being the husband of Princess Henrietta, of Schleswig-Holstein, who is also aunt to the present Empress of Germany. He is of medium height, with a full, gray beard parted in the middle, and has something of a military bearing. His manner is very pleasant and cordial.

The discussion of Wednesday evening on Cerebral Localization in its Practical Relations was looked forward to with a great deal of interest, especially as Dr. David Ferrier and Mr. Victor Horsley were to take part.

This evening a reception will be held at the Army Medical Museum, and it promises to be very enjoyable. The hall of the library is being draped in a very artistic manner.

Before closing, I must mention one feature which is very striking—not a drug vender, instrument dealer, book or medical journal agent, is to be seen about the Congress, registrating rooms, or any of the Societies, nor are there any circulars of the same distributed.

WASHINGTON, THURSDAY, SEPTEMBER 19TH.

NEW INVENTIONS.

A NEW FORM OF GALVANO-CAUTERY SNARE, ETC., FOR NASAL, THROAT, AND EYE-WORK.

BY JOSEPH A. WHITE, A.M., M.D.,
SENIOR SURGEON OF THE RICHMOND (VA.) EYE, EAR, THROAT, AND NOSE INFIRMARY.

IN the treatment of throat and nose affections the galvano-cautery is of such general utility that any improvement in the apparatus used for its application must necessarily be of interest to all who are engaged in this work. Most of the handles I have seen are too heavy to admit of rapid and skilful manipulation; and in using the snare and wheel attachment, for removal of polyps, growths, etc., in the nose and post-nasal space, I have found it clumsy and cumbersome, usually requiring *both hands*, if we wish to regulate the electric current and tighten the loop at the same time. To obviate these difficulties I have had a new form of handle, with snare attachment, made for me by Mr. Otto Flemming, the well-known electrician, of No. 1009 Arch Street, Philadelphia, which, after nine months' daily use, I can safely present to the profession as superior to any other I know of. This handle, with canula and snare attached, is represented in the accompanying cut.

The length of the handle (A) is 14 centimetres, its breadth 1 centimetre, its width 6 millimetres and its weight less than one ounce. Set into the handle along its whole length is a small ratchet on which runs the slide (C), to which are attached the ends of the platina loop passing through the canula (D). The slide (C) which catches on the ratchet, as it is pulled down, can be instantly released by pressing a spring at its lower part and the loop thereby loosened, if necessary. At the upper end of the hand there is a movable joint, into which the canula and electrodes are fastened, which can be fixed at any angle by the fixation screw (E).

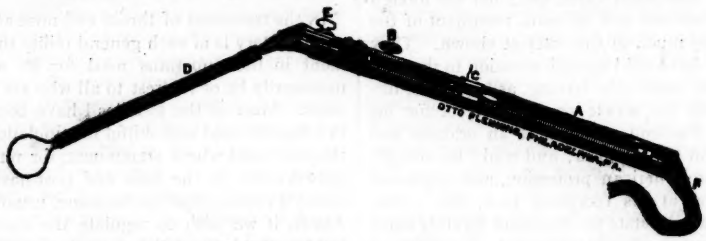
The conducting cords are fastened together by a spring (F), which can be attached or detached from the handle instantly, thus doing away with the two fixation screws, usually used for this purpose. At B is a spring and button, for current breaker.

The advantages of this handle and snare are apparent. It is so light and delicate, it is more easily manipulated, and with the slide and ratchet the snare can be more rapidly applied to growth. The movable joint at the top, by which the snare and electrodes can be regulated at any desired angle, is, in many cases, a decided advantage, and the doing away with the binding screws, at the bottom, an economy of time.

In post-nasal work this instrument is of great value, because it can be used with one hand, whilst the other holds the mirror in the throat, the thumb manipulating the slide (C) carrying the snare, and the forefinger regulating the current, by the button (B), then turning it off and on, as may be needed, whilst watching the operation in the mirror. With my *Post-nasal Speculum* (Self-retaining Palate-retractor) in position, the mirror in the left hand, and the handle in the right, every step of a post-nasal operation can be seen as easily as the removal of a growth from the skin.

I not only use it as a galvano-cautery snare, but also as a *cold* snare. Since I have had it I have almost en-

tirely discarded the Jarvis's and similar snares for infra-nasal operations. It is as light and delicate, as easily applied and the *cold* snare can, in a moment, be converted into a *hot* one, if desired. For removal of nasal polyps it is superior to any instrument I have ever used. If it captures the polyp about the *body*, gentle traction will usually break the pedicle, and then it can be cauterized; if about the *neck* the current can be turned on and



the polyp removed and root cauterized at the same time. For lower turbinated hypertrophies, it is superior to Jarvis's snare, as no transfixion with needles is ever necessary. If it does not grasp them as a *cold* snare and slips off, if the loop is pressed down about the hypertrophy, and the current turned on, a groove is made by the *hot* snare, and the loop firmly fixed by running the slide on the ratchet. The operation can then be completed with cold or hot snare as preferred. I have used it to remove turbinated hypertrophies, nasal polyps, growths from the septum and post-nasal space, including two fibroids from the vault of the pharynx. I have also removed adenoid tissue by its help, when the third tonsil was sufficiently large.

I also have a snare attachment for laryngeal work and I have successfully removed papillomata with its help. Every kind of electrode used in throat and nasal work, for linear cauterization, destruction of granulations, cauterizing ulcers, etc., can be attached to the same handle. I have half a dozen or more kinds. Moreover, I have had made for it several tiny points for *eye-work*, such as cauterizing ulcers of the cornea, destroying granulations of the conjunctiva, grooving the tarsal cartilage in entropion, etc. In this application the handle is held as a penholder and almost as easily manipulated.

410 EAST GRACE STREET, RICHMOND, VA.

NEWS ITEMS.

Transmission of Syphilis.—The Paris law courts have just decided a case in which the parents of a child suffering from hereditary syphilis, which communicated the disease to its nurse, have been condemned to pay £80 damages to the woman. Each of them has also had to pay a fine of £4. The decision was grounded on the clauses of the Code providing for the punishment for wounds or other injuries inflicted through carelessness. It appears that the parents were aware of their child's condition.—*British Medical Journal*, September 1, 1888.

Saccharin not a Food.—The Consulting Committee of Public Hygiene, in France, has officially approved the report of MM. BROUARDEL, POUCHET, and OGIER, relating to the use of saccharin. These gentlemen conclude that saccharin is not a food and cannot replace sugar. Its use retards the digestion of starchy and albuminous substances. It is extremely liable to augment intestinal troubles, and even cause those troubles which it was originally intended to cure. Its use is, of course, too recent to formulate decided views; but it seems to be settled that its effects on the digestive organs are harmful. —*L'Union Médicale*, August, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 11 TO SEPTEMBER 17, 1888.

PAGE, CHARLES, *Colonel and Assistant Surgeon-General, Medical Director of the Department*, will proceed to Forts Riley and Hays, Kansas; Post near Denver, and Forts Crawford, Lewis and Lyon, Colorado, and return, on public business. The travel enjoined is necessary for the public service.—*S. O. 114, Headquarters, Department of the Missouri, Fort Leavenworth, Kansas*, September 7, 1888.

NORRIS, BASIL, *Lieutenant-Colonel and Medical Director*, will proceed to Fort Klamath, inspect the Medical Department at that post, and, upon completion thereof, return to these Headquarters. —*S. O. 103, Headquarters, Department of the Columbia, Vancouver Barracks, Washington Territory*, September 3, 1888.

CALDWELL, DANIEL G., *Major and Surgeon.*—Is granted two months' leave of absence, from September 14, 1888.—*S. O. 210, A. G. O.*, September 10, 1888.

AINSWORTH, FREDERICK C., *Captain and Assistant Surgeon.* —Will, by direction of the Secretary of War, proceed to Kennebec Arsenal, Augusta, Maine, on public business connected with the Medical Department of the Army; on completion thereof, will return to his station in this city.—*S. O. 211, A. G. O., Washington, D. C.*, September 11, 1888.

BANISTER, JOHN M., *Captain and Assistant Surgeon* (U. S. Army).—Is granted two months' leave of absence, with permission to apply for an extension of one month, to take effect when his services can be spared.—*S. O. 211, A. G. O.*, September 10, 1888.

By direction of the Acting Secretary of War, NORTON STRONG, *Captain and Assistant Surgeon*, will report in person, at 11 o'clock A. M., October 18, 1888, to Brigadier-General John R. Brooke, President of the Retiring Board in session at Omaha, Nebraska, to give testimony in a case pending before the Board. Upon completion of this duty, he will return to his proper station.—Par. 9, *S. O. 212, A. G. O.*, September 12, 1888.

JARVIS, NATHAN S., *First Lieutenant and Assistant Surgeon.* —Is granted one month's extension of leave of absence, on surgeon's certificate of disability.—*S. O. 210, A. G. O.*, September 10, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING SEPTEMBER 15, 1888.

LUNG, GEORGE A., *Assistant Surgeon.*—Ordered to the Receiving Ship "Vermont," Navy Yard, New York.